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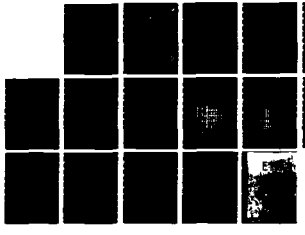

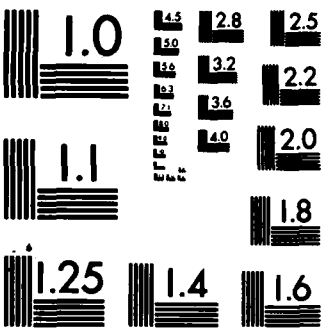

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EXPERIMENTAL PRESSURE DISTRIBUTIONS ON AXISYMMETRIC FOREBODIES AT MACH 3 AND ANGLES OF ATTACK UP TO 17.5 DEGREES

by

L. C. Ward

November 1983

Procurement Executive, Ministry of Defence
Farnborough, Hants

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EXPERIMENTAL PRESSURE DISTRIBUTIONS ON AXISYMMETRIC FOREBODIES AT MACH 3 AND ANGLES OF ATTACK UP TO 17.5 DEGREES

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SUMMARY

Tabulations of experimental surface pressure distributions on both blunt and sharp axisymmetric forebodies are presented for a freestream Mach number of 3.0 and body angles of attack up to 17.5 degrees. The experimental details are described, but no analysis of the resultant data has been undertaken.

LIST OF CONTENTS

1 INTRODUCTION

Data are readily available relating to the surface pressure distributions and pressure drags of a variety of axisymmetric forebody profiles at both transonic and supersonic Mach numbers at zero angle of attack[1-6]. This is not the case for non-zero angles of attack. Consequently it has been decided to publish surface pressure distributions obtained at a freestream Mach number of 3 for sixteen axisymmetric forebody profiles at angles of attack up to 17.5 degrees. A detailed analysis of the data for zero angle of attack extracted from the tests reported here has already been published[7].

The forebody shapes investigated were spherically-blunted single and double cones, spherically-blunted tangent ogives, truncated cones and three-quarter power-law profiles. A description of the wind tunnel tests and tabulations of the measured pressure distributions are presented in this Memorandum. No analysis of the results has been undertaken.

2 WIND TUNNEL, MODELS AND INSTRUMENTATION

The models were tested during the period 1969 to 1971 in a 15 inch × 10 inch (0.38 metre × 0.25 metre) blowdown wind tunnel, the freestream Mach number at the model location being 3.00. The stagnation pressure was kept constant at 552×10^3 N/m^2, giving a freestream Reynolds number per mm of 4.18×10^4 for all the models. No boundary layer transition fixing devices were used on any of the models.

The general arrangement of a model, adaptor and sting as mounted in the wind tunnel is shown in Fig 1, together with a cross-section through one model tube, the adaptor, and part of the sting. Seven tubes were accommodated within the sting, evenly spaced in roll, and with 'O' ring seals located at their ends at the sting-adaptor joint face.

By slackening the adaptor fixing screw, the adaptor and model could be rotated in steps of 51.43 degrees (one-seventh of a circle).

For each of the sixteen forebody profiles, two models were manufactured with differently positioned pressure tappings. The assigned model numbers and non-dimensional parameters of the forebody profiles are given in Table 1, the notation being defined in Fig 2 for the different types of forebody profile. As there are two definitions of the bluntness ratio in frequent use (*ie* 2r/D and d/D - see Fig 2), both ratios are tabulated. Drawings showing the actual model dimensions in millimeters are given with each table of results.

The pressure measuring holes were of diameter 0.5 mm, and were arranged in a spiral pattern around each model to minimise downstream interference effects between adjacent holes. All the tappings were inspected prior to the tunnel tests to ensure there were no burrs either inside the holes, or on the body surface around the holes.

The surface pressures were measured using a pressure transducer mounted in a pressure-stepping switch situated outside the wind tunnel. Pressure settling dwell times on the ports were determined from a number of initial 'shakedown' wind tunnel runs. Each port of the switch was 'O' ring sealed, with the transducer connected to vacuum between ports for the purpose of eliminating hysteresis effects. Known reference pressures were applied to the initial three ports of the switch, thus allowing the transducer to be

calibrated for each scan of the model pressures. The wind tunnel stagnation pressure was recorded for each pressure switch reading using a separate transducer mounted in a module complete with its own pressure calibration system.

The recording equipment consisted of a data-logger which switched the various transducer readings sequentially through an amplifier and analogue-to-digital converter. The resulting digital data were stored on paper tape ready for computer reduction to yield values of (p/p_0).

The transducer excitation voltages and amplifier gain were set such that the overall pressure range of each transducer gave outputs in the order of 10000 counts. The observed repeatability of the readings derived from the reference pressures was approximately ±2 counts. Applying this change to both transducers, the variation in (p/p_0) should be within ±0.0001 to ±0.0011 for the lowest to highest recorded values of p respectively.

The error in the setting of the model angle of attack (α) is not known, but is probably better than ±0.1 degree. The location of the pressure holes in roll (ϕ) is probably within ±0.5 degree.

3 PRESENTATION OF THE RESULTS

The surface pressures (p) have been divided by the freestream stagnation pressure (p_0), and are presented in Tables 2 to 17. Each table provides the complete results for one forebody profile (*ie* contains results from two nominally identical models as described in section 2), together with the forebody geometry and pressure hole locations. The forebody pressure drag coefficient at zero angle of attack $\left(C_{D_{p\,(\alpha=0^\circ)}}\right)$ was obtained from integrations of the zero angle of attack pressure distribution as described in Ref 7. Model angles of attack (α) were varied from 0 to 17.5 degrees in 2.5 degree steps.

The models form two different groups: those with pressure tappings spaced 51.43 degrees apart in roll (model numbers 4 to 23), and those with pressure tappings spaced 45 degrees apart in roll (model numbers 24 to 35). For the first group, the model roll increment equals the spacing between the pressure tappings, and so there are only seven different values for the effective hole roll angle (ϕ) relative to the pitch plane, irrespective of the number of pressure tappings. Results for these models are shown in Tables 2 to 11. The differences in ϕ shown for models 4, 10 and 12 (in Tables 2, 5 and 6 respectively) are the result of mistakes made during model manufacture. Manufacturing errors were also responsible for the incorrect machining of models 10 and 11 (Table 5), the dimensions of neither model being quite as intended.

For the second group of models, the model roll increment does not equal the spacing between the pressure tappings, and so the number of values for the effective roll angle (ϕ) relative to the pitch plane of each forebody profile becomes 98 (two models, each with seven tappings and seven roll angles). Results for these models are shown in Tables 12 to 15, together with the variation in ϕ. Tables 16 and 17 give only zero angle of attack data since models 32 to 35 were not tested at any other angle of attack.

With the exception of models 32 to 35 (Tables 16 and 17), the zero angle of attack results are the average values of data taken at the seven model roll angles.

Table 1

SUMMARY OF BODY GEOMETRICAL PARAMETERS AND LIST OF TABLE NUMBERS

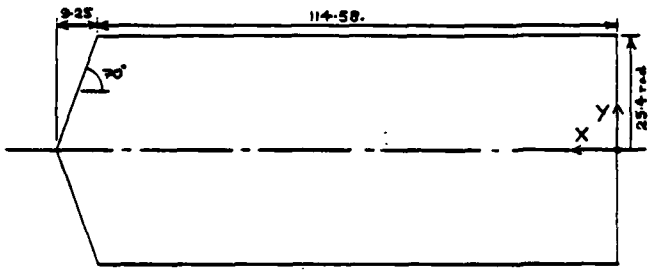
Model No.	ℓ	$2r/D$	d/D	θ_1°	θ_2°	R/D	Table No.	Forebody Shape
6 and 7	0·163	0·133	0·390	70			3	Spherically-Blunted Cone
8 and 9	0·441	0·198	0·280	45			4	" " "
12 and 13	0·382	0·396	0·560	45			6	" " "
16 and 17	3·125	0·198	0·200	7·5			8	" " "
20 and 21	2·466	0·397	0·400	7·5			10	" " "
4 and 5	0·182	0	0	70			2	Sharp Cone
10 and 11	0·400		0·200	45			5	Truncated Cone
14 and 15	0·300		0·400	45			7	" "
18 and 19	3·038		0·200	7·5			9	" "
22 and 23	2·279		0·400	7·5			11	" "
24 and 25	3	0·098	0·100	10·35	6·94		12	Spherically-Blunted Double Cone
26 and 27	2	0·121	0·125	14·36	11·01		13	" " " "
28 and 29	3						14	3/4 Power Law
30 and 31	2						15	" " "
32 and 33*	2	0·279	0·300			5·214	16	Spherically-Blunted Tangent Ogive
34 and 35*	2	0·584	0·600			7·625	17	" " " "

* Results At Zero Angle Of Attack Only

Table 2

(p/p_0) FOR MODELS 4 AND 5

SHARP CONE - CYLINDER



f	0·182
$2\pi/D$	0
d/D	0
$\theta_c°$	70
$\theta_n°$	
R/D	

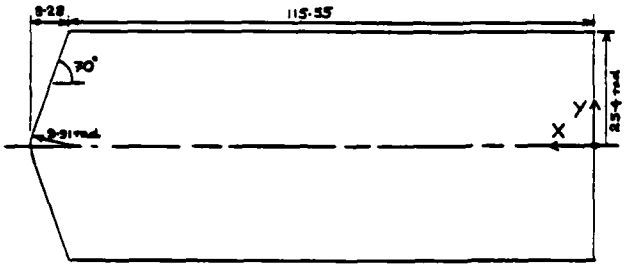
$C_{D_{P(\alpha=0°)}} = 1{\cdot}4880$

Model No.		4	5	4	5	4	5	4	5	4	5	4	5	4	5
	X	123·83	122·90	121·98	121·05	120·13	119·20	118·28	117·35	116·43	115·50	110·61	89·18	63·78	38·38
	Y	0	2·54	5·08	7·62	10·16	12·70	15·24	17·78	20·32	22·86	25·40	25·40	25·40	25·40
$\alpha = 0°$		0·3292	0·3262	0·3231	0·3180	0·3129	0·3070	0·3025	0·2928	0·2819	0·2591	0·0061	0·0200	0·0254	0·0261
		*		*		*		*		*		*		*	
$\alpha = 2·5°$ $\phi =$ Model No 4* $\phi = 0°, 51°, 51°, 103°, 103°, 154°, 154°$ (See Text)	12·9°	0·3255	0·3214	0·3149	0·3094	0·3060	0·3033	0·2986	0·2898	0·2751	0·2543	0·0048	0·0157	0·0229	0·0254
	38·6°	0·3248	0·3211	0·3183	0·3129	0·3095	0·2992	0·2964	0·2882	0·2793	0·2548	0·0050	0·0161	0·0227	0·0253
	64·3°	0·3277	0·3244	0·3160	0·3130	0·3059	0·3044	0·2955	0·2888	0·2758	0·2589	0·0054	0·0193	0·0241	0·0242
	90·0°	0·3253	0·3212	0·3240	0·3158	0·3135	0·3003	0·3022	0·2880	0·2820	0·2537	0·0074	0·0205	0·0260	0·0253
	115·7°	0·3265	0·3268	0·3228	0·3224	0·3129	0·3111	0·3013	0·2962	0·2815	0·2652	0·0072	0·0225	0·0271	0·0271
	141·4°	0·3253	0·3240	0·3246	0·3207	0·3191	0·3101	0·3108	0·2954	0·2878	0·2626	0·0068	0·0231	0·0277	0·0273
	167·1°	0·3284	0·3280	0·3239	0·3243	0·3173	0·3140	0·3051	0·3009	0·2859	0·2662	0·0077	0·0242	0·0274	0·0273
$\alpha = 5°$ $\phi =$ *	12·9°	0·3202	0·3143	0·3097	0·3056	0·3002	0·2957	0·2888	0·2816	0·2681	0·2488	0·0039	0·0122	0·0202	0·0238
	38·6°	0·3194	0·3135	0·3141	0·3057	0·3032	0·2941	0·2929	0·2839	0·2754	0·2447	0·0045	0·0129	0·0208	0·0239
	64·3°	0·3204	0·3161	0·3125	0·3091	0·3029	0·3000	0·2915	0·2864	0·2713	0·2557	0·0056	0·0189	0·0226	0·0230
	90·0°	0·3209	0·3173	0·3137	0·3131	0·3116	0·2982	0·3012	0·2844	0·2815	0·2525	0·0076	0·0201	0·0241	0·0239
	115·7°	0·3193	0·3262	0·3170	0·3179	0·3102	0·3103	0·3008	0·2983	0·2800	0·2640	0·0074	0·0259	0·0238	0·0234
	141·4°	0·3206	0·3222	0·3241	0·3189	0·3193	0·3114	0·3114	0·2990	0·2920	0·2657	0·0085	0·0246	0·0302	0·0280
	167·1°	0·3203	0·3264	0·3238	0·3233	0·3188	0·3186	0·3086	0·3044	0·2921	0·2714	0·0088	0·0296	0·0301	0·0292
$\alpha = 7·5°$ $\phi =$ *	12·9°	0·3162	0·3103	0·3056	0·3006	0·2945	0·2895	0·2819	0·2755	0·2612	0·2433	0·0034	0·0098	0·0181	0·0223
	38·6°	0·3158	0·3094	0·3101	0·3010	0·2983	0·2882	0·2878	0·2744	0·2695	0·2411	0·0039	0·0101	0·0191	0·0224
	64·3°	0·3158	0·3121	0·3083	0·3063	0·2981	0·2974	0·2870	0·2842	0·2669	0·2530	0·0048	0·0179	0·0210	0·0213
	90·0°	0·3164	0·3127	0·3140	0·3082	0·3094	0·2959	0·2991	0·2826	0·2799	0·2512	0·0077	0·0197	0·0263	0·0224
	115·7°	0·3145	0·3202	0·3146	0·3165	0·3079	0·3104	0·2985	0·2994	0·2790	0·2671	0·0076	0·0296	0·0283	0·0280
	141·4°	0·3179	0·3199	0·3227	0·3179	0·3194	0·3117	0·3128	0·3008	0·2964	0·2684	0·0096	0·0306	0·0327	0·0290
	167·1°	0·3164	0·3238	0·3244	0·3246	0·3207	0·3213	0·3120	0·3083	0·2965	0·2775	0·0099	0·0350	0·03320	0·0318
$\alpha = 10°$ $\phi =$ *	12·9°	0·3127	0·3039	0·2987	0·2933	0·2870	0·2819	0·2747	0·2677	0·2545	0·2375	0·0031	0·0077	0·0154	0·0202
	38·6°	0·3114	0·3036	0·3041	0·2941	0·2927	0·2814	0·2822	0·2670	0·2431	0·2352	0·0035	0·0078	0·0176	0·0201
	64·3°	0·3111	0·3084	0·3032	0·3029	0·2920	0·2934	0·2809	0·2805	0·2605	0·2505	0·0040	0·0175	0·0191	0·0193
	90·0°	0·3112	0·3079	0·3120	0·3036	0·3067	0·2925	0·2966	0·2802	0·2775	0·2488	0·0078	0·0195	0·0262	0·0205
	115·7°	0·3096	0·3183	0·3107	0·3142	0·3058	0·3083	0·2968	0·2993	0·2779	0·2695	0·0078	0·0333	0·0284	0·0285
	141·4°	0·3136	0·3175	0·3219	0·3159	0·3192	0·3108	0·3148	0·3003	0·3005	0·2688	0·0109	0·0351	0·0353	0·0303
	167·1°	0·3120	0·3232	0·3220	0·3242	0·3211	0·3218	0·3154	0·3128	0·3012	0·2830	0·0113	0·0411	0·0370	0·0351
$\alpha = 12·5°$ $\phi =$ *	12·9°	0·3000	0·2956	0·2903	0·2852	0·2785	0·2746	0·2672	0·2611	0·2478	0·2313	0·0029	0·0063	0·0124	0·0176
	38·6°	0·2986	0·2949	0·2960	0·2854	0·2845	0·2729	0·2746	0·2593	0·2553	0·2298	0·0031	0·0061	0·0162	0·0171
	64·3°	0·2988	0·2999	0·2950	0·2972	0·2841	0·2887	0·2740	0·2741	0·2545	0·2456	0·0035	0·0168	0·0174	0·0172
	90·0°	0·2986	0·3009	0·3081	0·2981	0·3024	0·2876	0·2947	0·2755	0·2763	0·2448	0·0079	0·0198	0·0259	0·0187
	115·7°	0·2974	0·3166	0·3077	0·3144	0·3041	0·3061	0·2953	0·2985	0·2783	0·2694	0·0081	0·0345	0·0286	0·0294
	141·4°	0·3021	0·3159	0·3243	0·3152	0·3185	0·3091	0·3152	0·2992	0·3017	0·2684	0·0124	0·0395	0·0391	0·0320
	167·1°	0·3026	0·3249	0·3234	0·3243	0·3194	0·3230	0·3169	0·3151	0·3048	0·2878	0·0129	0·0475	0·0408	0·0391
$\alpha = 15°$ $\phi =$ *	12·9°	0·2879	0·2858	0·2808	0·2767	0·2698	0·2661	0·2594	0·2530	0·2413	0·2260	0·0029	0·0055	0·0105	0·0146
	38·6°	0·2869	0·2847	0·2857	0·2758	0·2749	0·2639	0·2646	0·2518	0·2478	0·2242	0·0029	0·0052	0·0148	0·0140
	64·3°	0·2878	0·2896	0·2829	0·2884	0·2741	0·2813	0·2651	0·2695	0·2472	0·2411	0·0032	0·0170	0·0157	0·0155
	90·0°	0·2847	0·2908	0·3001	0·2894	0·2958	0·2803	0·2909	0·2686	0·2751	0·2388	0·0081	0·0198	0·0255	0·0171
	115·7°	0·2846	0·3096	0·3010	0·3119	0·3003	0·3071	0·2938	0·2983	0·2728	0·2680	0·0085	0·0406	0·0288	0·0309
	141·4°	0·2876	0·3095	0·3214	0·3153	0·3205	0·3099	0·3151	0·3000	0·3052	0·2684	0·0142	0·0438	0·0426	0·0340
	167·1°	0·2897	0·3202	0·3229	0·3229	0·3227	0·3227	0·3169	0·3158	0·3055	0·2918	0·0148	0·0541	0·2453	0·0441
$\alpha = 17·5°$ $\phi =$ *	12·9°	0·2726	0·2726	0·2692	0·2655	0·2585	0·2541	0·2499	0·2441	0·2340	0·2202	0·0027	0·0048	0·0088	0·0116
	38·6°	0·2713	0·2713	0·2728	0·2642	0·2647	0·2542	0·2549	0·2431	0·2390	0·2179	0·0027	0·0045	0·0132	0·0109
	64·3°	0·2720	0·2762	0·2688	0·2776	0·2630	0·2724	0·2549	0·2619	0·2389	0·2353	0·0031	0·0177	0·0138	0·0136
	90·0°	0·2668	0·2772	0·2907	0·2780	0·2880	0·2708	0·2856	0·2607	0·2698	0·2320	0·0080	0·0206	0·0253	0·0157
	115·7°	0·2673	0·3006	0·2909	0·3070	0·2924	0·3049	0·2877	0·2988	0·2717	0·2712	0·0082	0·0440	0·0292	0·0329
	141·4°	0·2716	0·3018	0·3163	0·3109	0·3203	0·3095	0·3174	0·3015	0·3068	0·2729	0·0168	0·0478	0·0468	0·0349
	167·1°	0·2755	0·3153	0·3175	0·3249	0·3238	0·3267	0·3207	0·3190	0·3072	0·2957	0·0183	0·0618	0·0511	0·0508

Table 3

(p/p_0) FOR MODELS 6 AND 7

SPHERICALLY-BLUNTED CONE-CYLINDER



f	0.163
$2r_0/D$	0.133
d/D	0.390
θ°	70
θ_1°	
R/D	

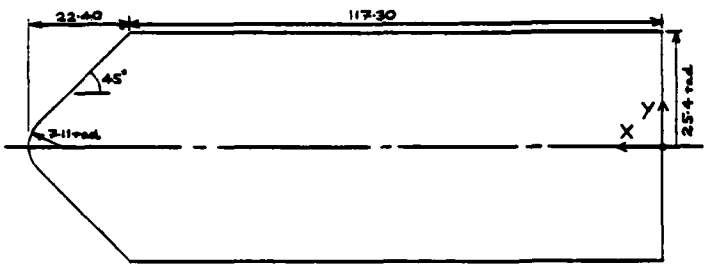
$C_{D_{P(\alpha=0^\circ)}} = 1.4760$

Model No.		6	7	6	7	6	7	6	7	6	7	6	7	6	7
	X	123.78	123.49	122.94	122.02	121.09	120.17	119.24	118.32	117.39	116.47	111.576	90.15	64.75	39.35
	Y	1.00	2.54	5.08	7.62	10.16	12.70	15.24	17.78	20.32	22.86	25.40	25.40	25.40	25.40
$\alpha = 0^\circ$		0.3250	0.3245	0.3187	0.3163	0.3100	0.3065	0.2995	0.2914	0.2782	0.2608	0.0062	0.0199	0.0252	0.0260
$\alpha = 2.5^\circ$	$\phi =$ 12.9°	0.3199	0.3205	0.3153	0.3129	0.3051	0.3024	0.2915	0.2888	0.2717	0.2575	0.0047	0.0153	0.0221	0.0247
	38.6°	0.3203	0.3208	0.3149	0.3128	0.3037	0.3013	0.2920	0.2857	0.2720	0.2547	0.0060	0.0160	0.02360	0.0248
	64.3°	0.3257	0.3211	0.3156	0.3135	0.3049	0.3050	0.2934	0.2907	0.2765	0.2604	0.0057	0.0196	0.0229	0.0241
	90.0°	0.3224	0.3219	0.3157	0.3123	0.3073	0.3013	0.2942	0.2860	0.2741	0.2568	0.0070	0.0201	0.0263	0.0251
	115.7°	0.3231	0.3236	0.3174	0.3200	0.3141	0.3114	0.3013	0.2935	0.2834	0.2689	0.0075	0.0220	0.0267	0.0268
	141.4°	0.3259	0.3253	0.3237	0.3177	0.3144	0.3092	0.3028	0.2937	0.2830	0.2630	0.0077	0.0235	0.0233	0.0268
	167.1°	0.3265	0.3246	0.3202	0.3213	0.3164	0.3121	0.3040	0.2994	0.2855	0.2694	0.0061	0.02370	0.0238	0.0278
$\alpha = 5^\circ$	$\phi =$ 12.9°	0.3179	0.3145	0.3116	0.3082	0.2990	0.2942	0.2856	0.2795	0.2657	0.2511	0.0044	0.0121	0.0198	0.0234
	38.6°	0.3190	0.3148	0.3118	0.3062	0.3001	0.2959	0.2874	0.2807	0.2644	0.2488	0.0052	0.0128	0.0215	0.0237
	64.3°	0.3194	0.3191	0.3127	0.3104	0.3023	0.2986	0.2904	0.2879	0.2733	0.2585	0.0058	0.0190	0.0216	0.0230
	90.0°	0.3210	0.3188	0.3133	0.3097	0.3051	0.2996	0.2933	0.2850	0.2729	0.2552	0.0070	0.0196	0.0265	0.0236
	115.7°	0.3211	0.3235	0.3163	0.3158	0.3133	0.3129	0.3008	0.2997	0.2858	0.2623	0.0075	0.0255	0.0235	0.0277
	141.4°	0.3237	0.3242	0.3212	0.3181	0.3158	0.3100	0.3068	0.2980	0.2875	0.2668	0.0082	0.0269	0.0299	0.0276
	167.1°	0.3251	0.3226	0.3207	0.3214	0.3200	0.3176	0.3081	0.3040	0.2901	0.2748	0.0082	0.0290	0.0307	0.0294
$\alpha = 7.5^\circ$	$\phi =$ 12.9°	0.3147	0.3093	0.3028	0.3013	0.2926	0.2879	0.2788	0.2729	0.2590	0.2459	0.0043	0.0095	0.0177	0.0217
	38.6°	0.3160	0.3104	0.3077	0.3001	0.2948	0.2888	0.2817	0.2749	0.2612	0.2428	0.0044	0.0102	0.0195	0.0221
	64.3°	0.3168	0.3166	0.3091	0.3074	0.2983	0.2964	0.2859	0.2844	0.2688	0.2541	0.0054	0.0184	0.0204	0.0215
	90.0°	0.3201	0.3166	0.3103	0.3077	0.3035	0.2973	0.2921	0.2837	0.2717	0.2541	0.0070	0.0193	0.0246	0.0217
	115.7°	0.3186	0.3237	0.3154	0.3148	0.3113	0.3121	0.2990	0.2999	0.2808	0.2685	0.0079	0.0289	0.0283	0.0285
	141.4°	0.3218	0.3232	0.3198	0.3171	0.3169	0.3087	0.3085	0.3002	0.2901	0.2706	0.0092	0.0303	0.0325	0.0285
	167.1°	0.3241	0.3225	0.3210	0.3218	0.3202	0.3192	0.3113	0.3082	0.2949	0.2808	0.0085	0.0347	0.0335	0.0315
$\alpha = 10^\circ$	$\phi =$ 12.9°	0.3082	0.3014	0.2951	0.2937	0.2846	0.2807	0.2714	0.2663	0.2524	0.2394	0.0031	0.0076	0.0147	0.0194
	38.6°	0.3097	0.3031	0.3003	0.2926	0.2867	0.2812	0.2745	0.2655	0.2546	0.2368	0.0036	0.0081	0.0176	0.0202
	64.3°	0.3121	0.3106	0.3022	0.3020	0.2921	0.2921	0.2807	0.2738	0.2639	0.2481	0.0050	0.0180	0.0191	0.0196
	90.0°	0.3159	0.3127	0.3096	0.3060	0.3011	0.2932	0.2894	0.2804	0.2708	0.2522	0.0070	0.0191	0.0245	0.0197
	115.7°	0.3176	0.3215	0.3133	0.3128	0.3096	0.3118	0.2971	0.2989	0.2795	0.2680	0.0081	0.0328	0.0287	0.0294
	141.4°	0.3179	0.3230	0.3200	0.3161	0.3158	0.3075	0.3101	0.3012	0.2941	0.2727	0.0103	0.0343	0.0355	0.0297
	167.1°	0.3225	0.3234	0.3219	0.3217	0.3196	0.3232	0.3145	0.3114	0.3000	0.2860	0.0108	0.0408	0.0370	0.0348
$\alpha = 12.5^\circ$	$\phi =$ 12.9°	0.2990	0.2924	0.2867	0.2847	0.2772	0.2725	0.2637	0.2585	0.2458	0.2325	0.0029	0.0061	0.0119	0.0168
	38.6°	0.3002	0.2927	0.2912	0.2834	0.2786	0.2723	0.2671	0.2573	0.2482	0.2305	0.0031	0.0066	0.0159	0.0177
	64.3°	0.3034	0.3023	0.2940	0.2941	0.2851	0.2863	0.2744	0.2724	0.2578	0.2434	0.0047	0.0180	0.0177	0.0178
	90.0°	0.3081	0.3046	0.3036	0.2961	0.2964	0.2870	0.2860	0.2758	0.2687	0.2476	0.0070	0.0191	0.0241	0.0176
	115.7°	0.3095	0.3118	0.3085	0.3120	0.3084	0.3101	0.2963	0.2972	0.2780	0.2675	0.0083	0.0371	0.0290	0.0304
	141.4°	0.3121	0.3174	0.3209	0.3180	0.3167	0.3073	0.3104	0.3001	0.2951	0.2739	0.0113	0.0384	0.0358	0.0311
	167.1°	0.3163	0.3194	0.3243	0.3239	0.3204	0.3197	0.3163	0.3143	0.3034	0.2913	0.0125	0.0474	0.04071	0.0389
$\alpha = 15^\circ$	$\phi =$ 12.9°	0.2895	0.2816	0.2775	0.2748	0.2681	0.2640	0.2554	0.2506	0.2390	0.2267	0.0028	0.0054	0.0097	0.0139
	38.6°	0.2913	0.2817	0.2804	0.2730	0.2686	0.2634	0.2586	0.2494	0.2417	0.2245	0.0029	0.0056	0.0143	0.0142
	64.3°	0.2937	0.2931	0.2851	0.2850	0.2774	0.2792	0.2645	0.2659	0.2516	0.2383	0.0043	0.0179	0.0163	0.0161
	90.0°	0.2991	0.2947	0.2948	0.2846	0.2886	0.2790	0.2796	0.2696	0.2639	0.2426	0.0069	0.0196	0.0257	0.0160
	115.7°	0.3020	0.3052	0.3021	0.3074	0.3040	0.3103	0.2946	0.2977	0.2796	0.2691	0.0090	0.0409	0.0293	0.0322
	141.4°	0.3044	0.3105	0.3185	0.3163	0.3190	0.3086	0.3099	0.3005	0.2962	0.2739	0.0126	0.0420	0.0421	0.0328
	167.1°	0.3088	0.3128	0.3213	0.3257	0.3237	0.3223	0.3176	0.3163	0.3069	0.2957	0.0144	0.0535	0.0449	0.0440
$\alpha = 17.5^\circ$	$\phi =$ 12.9°	0.2764	0.2665	0.2653	0.2632	0.2570	0.2534	0.2461	0.2410	0.2322	0.2202	0.0023	0.0048	0.0081	0.0107
	38.6°	0.2772	0.2668	0.2674	0.2609	0.2580	0.2530	0.2495	0.24081	0.2339	0.2181	0.0023	0.0049	0.01281	0.0115
	64.3°	0.2827	0.2810	0.2736	0.2737	0.2666	0.2689	0.2571	0.2533	0.2435	0.2318	0.0041	0.0185	0.0146	0.0145
	90.0°	0.2870	0.2816	0.2831	0.2754	0.2797	0.2690	0.2727	0.2617	0.2582	0.2366	0.0070	0.0204	0.0251	0.0144
	115.7°	0.2924	0.2969	0.2944	0.3014	0.2974	0.3076	0.2900	0.2962	0.2765	0.2705	0.0095	0.0440	0.02991	0.0346
	141.4°	0.2941	0.3019	0.3140	0.3126	0.3180	0.3060	0.3128	0.3028	0.2979	0.2765	0.0134	0.0461	0.0464	0.0353
	167.1°	0.3005	0.3073	0.3176	0.3229	0.3236	0.3251	0.3209	0.3187	0.3102	0.2996	0.0177	0.0602	0.05040	0.0509

Table 4

(p/p_0) FOR MODELS 8 AND 9

SPHERICALLY - BLUNTED CONE - CYLINDER



f	0·441
2r/D	0·198
d/D	0·280
$\theta_1°$	45
$\theta_2°$	
R/D	

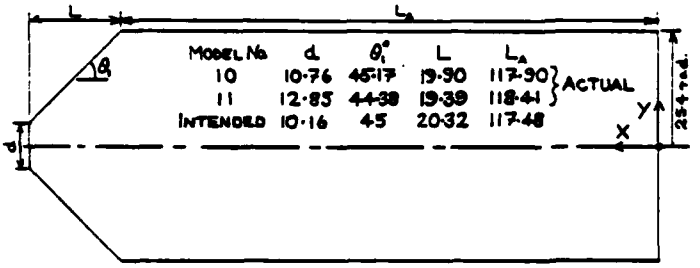
$C_{D_{P(\alpha=0°)}} = 1·1520$

Model No.		8	9	8	9	8	9	8	9	8	9	8	9	8	9
	X	139·70	139·23	137·62	135·08	132·54	130·00	127·46	124·92	122·38	119·84	113·33	91·90	66·50	41·10
	Y	0	2·54	5·08	7·62	10·16	12·70	15·24	17·78	20·32	22·86	25·40	25·40	25·40	25·40
$\alpha = 0°$		0·3307	0·2962	0·1963	0·2143	0·2170	0·2231	0·2226	0·2279	0·2208	0·2263	0·0180	0·0210	0·0241	0·0258
$\alpha = 2·5°$	$\phi =$ 12·9°	0·3267	0·2918	0·1740	0·1989	0·2014	0·2075	0·2077	0·2105	0·2092	0·2176	0·0166	0·0287	0·0214	0·0248
	38·6°	0·3314	0·2905	0·1792	0·2004	0·2048	0·211	0·2110	0·2137	0·2086	0·2098	0·0169	0·0277	0·0224	0·0241
	64·3°	0·3295	0·2875	0·1864	0·2050	0·2101	0·2123	0·2176	0·2190	0·2183	0·2163	0·0179	0·0200	0·0224	0·0238
	90·0°	0·3288	0·2976	0·1999	0·2144	0·2161	0·2234	0·2247	0·2255	0·2194	0·2295	0·0177	0·0312	0·0251	0·0258
	115·7°	0·3297		0·2063	0·2215	0·2233		0·2292	0·2350	0·2243	0·2304	0·0181	0·0221	0·0250	
	141·4°	0·3294	0·3053	0·2116	0·2299	0·2296	0·2359	0·2340	0·2411	0·2308	0·2435	0·0186	0·0233	0·0268	0·0233
	167·1°	0·3296	0·3016	0·2170	0·2295	0·2348	0·2371	0·2405	0·2436	0·2361	0·2364	0·0188	0·0234	0·0268	0·0272
$\alpha = 5°$	$\phi =$ 12·9°	0·3224	0·2690	0·1604	0·1801	0·1857	0·1935	0·1915	0·1947	0·1934	0·1896	0·0154	0·0154	0·0193	0·0238
	38·6°	0·3259	0·2814	0·1674	0·1922	0·1938	0·1981	0·1993	0·2002	0·1977	0·2044	0·0160	0·0166	0·0203	0·0223
	64·3°	0·3243	0·2785	0·1736	0·1964	0·2006	0·2120	0·2094	0·2156	0·2097	0·2213	0·0170	0·0184	0·0205	0·0219
	90·0°	0·3246	0·2965	0·2020	0·2157	0·2165	0·2219	0·2237	0·2246	0·2199	0·2281	0·0176	0·0211	0·0251	0·0246
	115·7°	0·3254		0·2143	0·2214	0·2280		0·2356	0·2423	0·2312	0·2413	0·0183	0·0235	0·0240	
	141·4°	0·3250	0·3056	0·2239	0·2457	0·2428	0·2495	0·2468	0·2500	0·2411	0·2482	0·0190	0·0264	0·0297	0·0285
	167·1°	0·3257	0·3059	0·2359	0·2468	0·2501	0·2540	0·2538	0·2597	0·2481	0·2470	0·0193	0·0293	0·0302	0·0293
$\alpha = 7·5°$	$\phi =$ 12·9°	0·3209	0·2630	0·1446	0·1653	0·1702	0·1778	0·1737	0·1828	0·1772	0·1755	0·0142	0·0285	0·0171	0·0223
	38·6°	0·3213	0·2749	0·1577	0·1829	0·1799	0·1862	0·1857	0·1874	0·1836	0·1805	0·0149	0·0146	0·0178	0·0200
	64·3°	0·3216	0·2720	0·1728	0·1832	0·1921	0·2104	0·1990	0·2063	0·1990	0·2104	0·0158	0·0167	0·0188	0·0195
	90·0°	0·3228	0·2924	0·2019	0·2213	0·2168	0·2190	0·2210	0·2210	0·2165	0·2233	0·0172	0·0276	0·0249	0·0230
	115·7°	0·3232		0·2227	0·2313	0·2321		0·2364	0·2444	0·2307	0·2390	0·0181	0·0250	0·0266	
	141·4°	0·3240	0·3107	0·2449	0·2586	0·2543	0·2585	0·2547	0·2537	0·2443	0·2495	0·0197	0·0294	0·0324	0·0298
	167·1°	0·3247	0·3104	0·2558	0·2615	0·2640	0·2678	0·2613	0·2673	0·2556	0·2518	0·0205	0·0316	0·0334	0·0317
$\alpha = 10°$	$\phi =$ 12·9°	0·3212	0·2359		0·1458	0·1520	0·1667	0·1623	0·1672	0·1624	0·1702	0·0129	0·0268	0·0151	0·0209
	38·6°	0·3211	0·2635	0·1482	0·1699	0·1639	0·1741	0·1711	0·1741	0·1734	0·1748	0·0137	0·0127		0·0170
	64·3°		0·2617	0·1642	0·1733	0·1822	0·1984	0·1843	0·1944	0·1853	0·1978	0·0145	0·0157	0·0171	0·0168
	90·0°	0·3233	0·2997	0·2083	0·2242	0·2138	0·2144		0·2147	0·2116	0·2166	0·0168	0·0208	0·0245	0·0213
	115·7°	0·3237		0·2326	0·2346	0·2348		0·2332	0·2420		0·2336	0·0181	0·0268	0·0271	
	141·4°	0·3233	0·3207	0·2434	0·2601	0·2631	0·2632	0·2604	0·2586	0·2508	0·2474		0·0342	0·0357	0·0318
	167·1°	0·3236	0·3219	0·2559	0·2371		0·2775	0·2682	0·2729	0·2615	0·2543	0·0228	0·0371	0·0373	0·0346
$\alpha = 12·5°$	$\phi =$ 12·9°	0·3136	0·2372	0·1190	0·1330	0·1366	0·1510	0·1423	0·1525	0·1486	0·1439	0·0115	0·0102	0·0137	0·0197
	38·6°	0·3130	0·2562	0·1355	0·1570	0·1490	0·1579	0·1583	0·1587	0·1579	0·1621	0·0125	0·0114	0·0138	0·0136
	64·3°	0·3158	0·2501	0·1574	0·1676	0·1699	0·1846	0·1731	0·1802	0·1703	0·1832	0·0135	0·0141	0·0152	0·0139
	90·0°	0·3150	0·2981	0·2121	0·2253	0·2037	0·2070	0·2098	0·2058	0·2041	0·2069	0·0161	0·0208	0·0243	0·0198
	115·7°	0·3133		0·2381	0·2364	0·2352		0·2304	0·2395	0·2227	0·2285	0·0181	0·0296	0·0275	
	141·4°	0·3146	0·3232	0·2803	0·2805	0·2309	0·2675	0·2640	0·2606	0·2538	0·2479	0·0234	0·0386	0·0395	0·0342
	167·1°	0·3157	0·3230	0·2933	0·2867	0·2843	0·2847	0·2748	0·2778	0·2661	0·2570	0·0253	0·0431	0·0412	0·0384
$\alpha = 15°$	$\phi =$ 12·9°	0·3091	0·2222	0·1041	0·1201	0·1224	0·1364	0·1343	0·1388	0·1348	0·1408	0·0106	0·0248	0·0132	0·0185
	38·6°	0·3092	0·2424	0·1234	0·1456	0·1361	0·1427	0·1429	0·1444	0·1454	0·1437	0·0114	0·0101	0·0120	0·0105
	64·3°	0·3123	0·2402	0·1513	0·1570	0·1586	0·1710	0·1585	0·1658	0·1561	0·1684	0·0124	0·0131	0·0133	0·0117
	90·0°	0·3082	0·2934	0·2101	0·2221	0·2013	0·1999	0·2023	0·1983	0·1968	0·1968	0·0161	0·0209	0·0238	0·0184
	115·7°	0·3093		0·2405	0·2344	0·2335		0·2243	0·2369	0·2192	0·2257	0·0181	0·0321	0·0279	
	141·4°	0·3091	0·3094	0·2895	0·2689	0·2747	0·2720	0·2689	0·2623	0·2565	0·2470	0·0255	0·0432	0·0430	0·0372
	167·1°	0·3111	0·3225	0·3032	0·2955	0·2949	0·2919	0·2810	0·2827	0·2689	0·2602	0·0279	0·0494	0·0458	0·0430
$\alpha = 17·5°$	$\phi =$ 12·9°	0·2867	0·2048	0·0938	0·1081	0·1099	0·1231	0·1201	0·1235	0·1207	0·1256	0·0094	0·0234	0·0126	0·0177
	38·6°	0·2963	0·2284	0·1136	0·1352	0·1235	0·1245	0·1237	0·1302	0·1305	0·1305	0·0101	0·0092	0·0100	0·0072
	64·3°	0·2997	0·2246	0·1433	0·1443	0·1453	0·1547	0·1422	0·1498	0·1423	0·1423	0·0113	0·0128	0·0112	0·0094
	90·0°	0·2945	0·2833	0·2063	0·2155	0·1918	0·1916	0·1953	0·1876	0·1812	0·1953	0·0204	0·0235	0·0204	0·0175
	115·7°	0·2968		0·2408		0·2305		0·2218	0·2329	0·2146	0·2218	0·0183	0·0343	0·0283	
	141·4°	0·2949	0·3255	0·2935	0·2954	0·2810	0·2773	0·2751	0·2654	0·2595	0·2481	0·0279	0·0489	0·0474	0·0411
	167·1°	0·2969	0·3250	0·3143	0·3018	0·3016	0·3000	0·2874	0·2892	0·2722	0·2646	0·0319	0·0570	0·0511	0·0490

Table 5

(p/p_0) FOR MODELS 10 AND 11

TRUNCATED CONE-CYLINDER



MODEL No	d	$\theta_c°$	L	L_A	
10	10·76	45·17	19·90	117·90	ACTUAL
11	12·85	44·38	19·39	118·41	ACTUAL
INTENDED	10·16	45	20·32	117·48	

INTENDED	
f	0·400
2r/D	
d/D	0·200
$\theta_c°$	45
θ_n	
R/D	

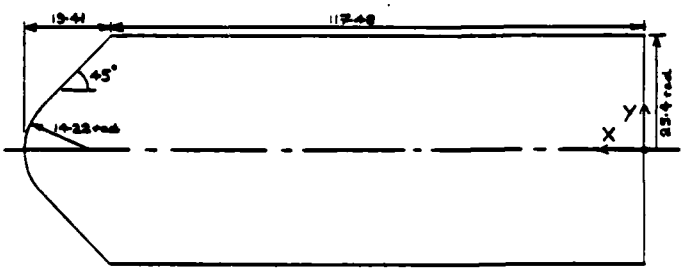
$C_{D_{P(\alpha=0°)}} = 1.0520$

MODEL No.		10	11	10	11	10	11	10	11	10	11	10	11	10	11
	X	137·80	137·80	137·80	135·26	132·72	130·18	127·64	125·10	122·56	120·02	115·48	92·08	66·68	41·28
	Y	0	2·54	5·08	7·62	10·16	12·70	15·24	17·78	20·32	22·86	25·40	25·40	25·40	25·40
$\alpha = 0°$		0·3322	0·3280	0·2646	0·1078	0·2134	0·2170	0·2249	0·2190	0·2260	0·2178	0·0206	0·0209	0·0242	0·0251
		*		*		*		*		*		*		*	
$\alpha = 2.5°$ $\phi =$	12·9°	0·3302	0·3229	0·2549	0·0816	0·1943	0·2005	0·2094	0·2022	0·2084	0·2019	0·0190	0·0173	0·0219	0·0252
Model No 10*	38·6°	0·3315	0·3247	0·2540	0·0884	0·1958	0·2055	0·2105	0·2060	0·2124	0·2058	0·0196	0·0185	0·0212	0·0236
$\phi = 21·4°, 30·0°,$	64·3°	0·3314	0·3259	0·2593	0·1141	0·2046	0·2094	0·2188	0·2106	0·2187	0·2122	0·0202	0·0191	0·0235	0·0227
$72·9°, 81·4°,$	90·0°	0·3303	0·3267	0·2645	0·1196	0·2110	0·2139	0·2231	0·2197	0·2251	0·2180	0·0208	0·0219	0·0236	0·0251
$124·3°, 132·9°,$	115·7°	0·3280	0·3247	0·2690	0·1455	0·2225	0·2232	0·2316	0·2253	0·2358	0·2253	0·0213	0·0218	0·0260	0·0249
$175·7°$	141·4°	0·3301	0·3315	0·2698	0·1437	0·2292	0·2292	0·2370	0·2321	0·2374	0·2297	0·0211	0·0244	0·0260	0·0246
(SEE TEXT)	167·1°	0·3297	0·3307	0·2697	0·1503	0·2336	0·2331	0·2421	0·2357	0·2408	0·2334	0·0214	0·0239	0·0272	0·0263
$\alpha = 5°$ $\phi =$	12·9°	0·3250	0·3176	0·2491	0·0821	0·1796	0·1820	0·1938	0·1876	0·1924	0·1865	0·0174	0·0151	0·0195	0·0234
*	38·6°	0·3291	0·3172	0·2482	0·0859	0·1893	0·1920	0·1965	0·1934	0·1998	0·1944	0·0180	0·0168	0·0187	0·0215
	64·3°	0·3250	0·3219	0·2534	0·0980	0·2011	0·1937	0·2128	0·2005	0·2130	0·2029	0·0194	0·0174	0·0221	0·0206
	90·0°	0·3279	0·3243	0·2602	0·1394	0·2180	0·2188	0·2186	0·2200	0·2203	0·2192	0·0201	0·0223	0·0225	0·0244
	115·7°	0·3250	0·3243	0·2695	0·1444	0·2324	0·2221	0·2406	0·2229	0·2404	0·2256	0·0206	0·0229	0·0277	0·0246
	141·4°	0·3273	0·3243	0·2752	0·1974	0·2405	0·2427	0·2448	0·2447	0·2441	0·2399	0·0207	0·0239	0·0281	0·0283
	167·1°	0·3294	0·3252	0·2793	0·2001	0·2513	0·2463	0·2530	0·2471	0·2526	0·2428	0·0209	0·0274	0·0303	0·0281
$\alpha = 7·5°$ $\phi =$	12·9°	0·3231	0·3163	0·2453	0·0924	0·1620	0·1623	0·1772	0·1690	0·1790	0·1717	0·0158	0·0141	0·0170	0·0219
*	38·6°	0·3272	0·3168	0·2495	0·0799	0·1648	0·1777	0·1818	0·1810	0·1844	0·1854	0·0164	0·0150	0·0161	0·0189
	64·3°	0·3229	0·3210	0·2508	0·0913	0·1932	0·1842	0·2047	0·1887	0·2058	0·1916	0·0184	0·0156	0·0206	0·0178
	90·0°	0·3258	0·3241	0·2602	0·1476	0·2049	0·2168	0·2135	0·2194	0·2139	0·2155	0·0190	0·0233	0·0214	0·0233
	115·7°	0·3233	0·3225	0·2739	0·1880	0·2414	0·2287	0·2445	0·2278	0·2424	0·2237	0·0194	0·0238	0·0293	0·0240
	141·4°	0·3240	0·3245	0·2793	0·2423	0·2504	0·2540	0·2505	0·2535	0·2479	0·2447	0·0198	0·0324	0·0301	0·0300
	167·1°	0·3243	0·3230	0·2908	0·2445	0·2468	0·2584	0·2444	0·2557	0·2600	0·2484	0·0206	0·0317	0·0338	0·0302
$\alpha = 10°$ $\phi =$	12·9°	0·3248	0·3148	0·2341	0·0454	0·1430	0·1442	0·1572	0·1487	0·1649	0·1586	0·0144	0·0143	0·0147	0·0202
*	38·6°	0·3260	0·3156	0·2363	0·0713	0·1486	0·1614	0·1638	0·1679	0·1678	0·1705	0·0143	0·0133	0·0140	0·0158
	64·3°	0·3252	0·3218	0·2485	0·0914	0·1899	0·1814	0·1937	0·1749	0·1968	0·1791	0·0166	0·0139	0·0194	0·0150
	90·0°	0·3286	0·3238	0·2555	0·1854	0·2004	0·2130	0·2085	0·2172	0·2052	0·2112	0·0175	0·0242	0·0203	0·0220
	115·7°	0·3261	0·3274	0·2827	0·2024	0·2488	0·2284	0·2473	0·2251	0·2415	0·2193	0·0190	0·0253	0·0309	0·0234
	141·4°	0·3283	0·3281	0·2921	0·2455	0·2536	0·2420	0·2551	0·2400	0·2499	0·2484	0·0198	0·0324	0·0319	0·0326
	167·1°	0·3241	0·3285	0·3042	0·2648	0·2802	0·2685	0·2752	0·2626	0·2665	0·2514	0·0213	0·0373	0·0385	0·0329
$\alpha = 12·5°$ $\phi =$	12·9°	0·3194	0·3081	0·2273	0·0548	0·1278	0·1296	0·1424	0·1338	0·1492	0·1403	0·0129	0·0140	0·0133	0·0192
*	38·6°	0·3203	0·3103	0·2291	0·0431	0·1340	0·1488	0·1445	0·1527	0·1527	0·1563	0·0130	0·0122	0·0128	0·0124
	64·3°	0·3194	0·3141	0·2452	0·0884	0·1818	0·1581	0·1829	0·1611	0·1841	0·1618	0·0154	0·0126	0·0181	0·0121
	90·0°	0·3233	0·3187	0·2514	0·2030	0·1951	0·2124	0·1957	0·2140	0·1944	0·2073	0·0161	0·0255	0·0191	0·0211
	115·7°	0·3202	0·3224	0·2903	0·2145	0·2552	0·2260	0·2483	0·2229	0·2412	0·2161	0·0186	0·0270	0·0323	0·0227
	141·4°	0·3229	0·3247	0·2981	0·2817	0·2640	0·2679	0·2576	0·2697	0·2514	0·2501	0·0194	0·0424	0·0338	0·0357
	167·1°	0·3212	0·3265	0·3204	0·2829	0·2919	0·2754	0·2822	0·2688	0·2725	0·2537	0·0224	0·0437	0·0421	0·0365
$\alpha = 15°$ $\phi =$	12·9°	0·3175	0·3041	0·2183	0·0456	0·1121	0·1196	0·1286	0·1207	0·1345	0·1246	0·0115	0·0138	0·0129	0·0192
*	38·6°	0·3184	0·3071	0·2228	0·0574	0·1214	0·1368	0·1322	0·1390	0·1364	0·1437	0·0118	0·0110	0·0121	0·0094
	64·3°	0·3178	0·3087	0·2345	0·0828	0·1732	0·1463	0·1731	0·1475	0·1726	0·1475	0·0138	0·0115	0·0167	0·0094
	90·0°	0·3194	0·3167	0·2445	0·2128	0·1888	0·2083	0·1842	0·2096	0·1840	0·1996	0·0146	0·0246	0·0178	0·0206
	115·7°	0·3183	0·3199	0·2974	0·2248	0·2572	0·2215	0·2477	0·2169	0·2421	0·2094	0·0186	0·0280	0·0339	0·0224
	141·4°	0·3193	0·3242	0·3040	0·2948	0·2680	0·2730	0·2595	0·2685	0·2503	0·2513	0·0197	0·0429	0·0341	0·0393
	167·1°	0·3183	0·3247	0·3254	0·2961	0·2033	0·2815	0·2891	0·2727	0·2781	0·2544	0·0231	0·0487	0·0472	0·0409
$\alpha = 17·5°$ $\phi =$	12·9°	0·3084	0·2972	0·2084	0·0419	0·0976	0·1087	0·1138	0·1077	0·1195	0·1106	0·0103	0·0130	0·0126	0·0199
*	38·6°	0·3095	0·2981	0·2121	0·0548	0·1107	0·1245	0·1164	0·1269	0·1197	0·291	0·0101	0·0098	0·0118	0·0068
	64·3°	0·3098	0·3017	0·2279	0·0710	0·1461	0·1343	0·1597	0·1340	0·1592	0·1329	0·0123	0·0104	0·0150	0·0073
	90·0°	0·3112	0·3083	0·2427	0·2135	0·1814	0·2003	0·1746	0·2005	0·1708	0·1905	0·0132	0·0281	0·0167	0·0202
	115·7°	0·3104	0·3163	0·2958	0·2291	0·2562	0·2147	0·2470	0·2112	0·2417	0·2028	0·0186	0·0299	0·0362	0·0223
	141·4°	0·3110	0·3187	0·3052	0·3032	0·2709	0·2811	0·2405	0·2333	0·2499	0·2537	0·0203	0·0541	0·0389	0·0441
	167·1°	0·3121	0·3219	0·3326	0·3060	0·3107	0·2899	0·2975	0·2789	0·2836	0·2601	0·0249	0·0563	0·0532	0·0461

Table 6

(p/p_0) FOR MODELS 12 AND 13

SPHERICALLY-BLUNTED CONE-CYLINDER



f	0·382
$2r_0/D$	0·396
d/D	0·560
$\theta_c°$	45
$\theta_n°$	
R/D	

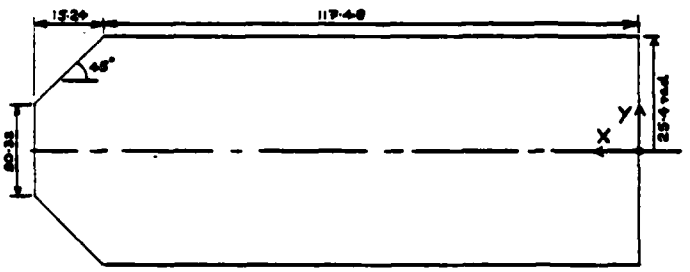
$C_{D_{P(\alpha=0°)}} = 1.0920$

Model No.		12	13	12	13	12	13	12	13	12	13	12	13	12	13
	X	46·99	134·65	135·94	134·67	132·72	130·18	127·64	125·10	122·56	120·02	112·30	92·08	66·68	41·28
	Y	0·40	2·54	5·08	7·62	10·16	12·70	15·24	17·78	20·32	22·86	25·40	25·40	25·40	25·40
$\alpha = 0°$		0·3308	0·3215	0·2894	0·2355	0·1892	0·2077	0·2137	0·2186	0·2201	0·2192	0·0206	0·0199	0·0232	0·0250
		†		†		†		*		*		*		*	
$\alpha = 2.5°$ $\phi =$	12·9°	0·3242	0·3141	0·2786	0·2236	0·1700	0·1884	0·1971	0·2028	0·2080	0·2059	0·0187	0·0174	0·0214	0·0248
Model No 12	38·6°	0·3250	0·3143	0·2768	0·2235	0·1731	0·1945	0·1977	0·2066	0·2008	0·2076	0·0188	0·0181	0·0212	0·0234
†Jets 18°, 34°, 65°, 85°, 121°, 136°, 172°	64·3°	0·3257	0·3179	0·2837	0·2290	0·1829	0·1983	0·1998	0·2137	0·2185	0·2148	0·0204	0·0187	0·0221	0·0226
(See Text)	90·0°	0·3294	0·3209	0·2888	0·2383	0·1894	0·2029	0·2092	0·2168	0·2160	0·2168	0·0201	0·0205	0·0234	0·0248
	115·7°	0·3297	0·3210	0·2929	0·2413	0·1991	0·2173	0·2243	0·2241	0·2295	0·2256		0·0211	0·0248	0·0250
	141·4°	0·3307	0·3248	0·2947	0·2479	0·2044	0·2229	0·2245	0·2287	0·2334	0·2302	0·0215	0·0226	0·0257	0·0263
	167·1°	0·3264	0·3233	0·2824	0·2422	0·2093	0·2231	0·2336	0·2348	0·2351	0·2342	0·0217	0·0224	0·0260	0·0263
$\alpha = 5°$ $\phi =$	12·9°	0·3213	0·3075	0·2657	0·2145	0·1554	0·1713	0·1802	0·1802	0·1917	0·1882	0·0169	0·0156	0·0187	0·0229
†Jets 21°, 31°, 72°, 89°, 124°, 134°, 175°	38·6°	0·3208	0·3098	0·2689	0·2165	0·1586	0·1798	0·1802	0·1932	0·1885	0·1963	0·0170	0·0167	0·0189	0·0213
(See Text)	64·3°	0·3212	0·3127	0·2728	0·2219	0·1790	0·1898	0·1993	0·2051	0·2128	0·2065	0·0196	0·0172	0·0208	0·0206
	90·0°	0·3285	0·3189	0·2828	0·2353	0·1879	0·2102	0·2041	0·2180	0·2125	0·2155	0·0198	0·0206	0·0224	0·0239
	115·7°	0·3243	0·3195	0·2926	0·2444	0·2097	0·2239	0·2347	0·2310	0·2424	0·2223		0·0221	0·0264	0·0248
	141·4°	0·3242	0·3250	0·2985	0·2595	0·2196	0·2395	0·2359	0·2412	0·2406	0·2385	0·0214	0·0257	0·0285	0·0279
	167·1°	0·3236	0·3234	0·2915	0·2624	0·2300	0·2443	0·2505	0·2491	0·2484	0·2430	0·0224	0·0242	0·0296	0·0283
$\alpha = 7.5°$ $\phi =$	12·9°	0·3196	0·3047	0·2580	0·2009	0·1397	0·1525	0·1632	0·1614	0·1757	0·1726	0·0152	0·0144	0·0173	0·0209
	38·6°	0·3205	0·3055	0·2539	0·2093	0·1449	0·1659	0·1637	0·1801	0·1761	0·1833	0·0152	0·0152	0·0165	0·0190
	64·3°	0·3196	0·3104	0·2724	0·2164	0·1739	0·1817	0·1963	0·1949	0·2056	0·1952	0·0183	0·0158	0·0195	0·0181
	90·0°	0·3221	0·3117	0·2803	0·2342	0·1891	0·2117	0·2026	0·2170	0·2074	0·2128	0·0188	0·0209	0·0215	0·0228
	115·7°	0·3203	0·3174	0·2934	0·2469	0·2213	0·2280	0·2412	0·2323	0·2382	0·2266		0·0234	0·0280	0·0245
	141·4°	0·3212	0·3251	0·3028	0·2705	0·2344	0·2527	0·2440	0·2503	0·2620	0·2416	0·0213	0·0295	0·0302	0·0297
	167·1°	0·3214	0·3226	0·3092	0·2767	0·2510	0·2593	0·2624	0·2600	0·2561	0·2485	0·0235	0·0307	0·0330	0·0306
$\alpha = 10°$ $\phi =$	12·9°	0·3176	0·2942	0·2439	0·1904	0·1251	0·1341	0·1468	0·1429	0·1581	0·1550	0·0136	0·0137	0·0173	0·0192
	38·6°	0·3182	0·3006	0·2494	0·1991	0·1327	0·1532	0·1482	0·1675	0·1590	0·1623	0·0140	0·0137	0·0144	0·0160
	64·3°	0·3196	0·3030	0·2660	0·2093	0·1676	0·1762	0·1911	0·1831	0·1959	0·1813	0·0168	0·0142	0·0182	0·0152
	90·0°	0·3210	0·3129	0·2793	0·2357	0·1890	0·2120	0·1954	0·2134	0·1995	0·2085	0·0173	0·0213	0·0204	0·0216
	115·7°	0·3211	0·3198	0·2984	0·2549	0·2304	0·2392	0·2445	0·2304	0·2385	0·2224		0·0252	0·0298	0·0241
	141·4°	0·3231	0·3295	0·3105	0·2780	0·2479	0·2623	0·2483	0·2572	0·2429	0·2434	0·0225	0·0341	0·0320	0·0321
	167·1°	0·3225	0·3290	0·3163	0·2894	0·2683	0·2712	0·2726	0·2685	0·2624	0·2537	0·0259	0·0362	0·0366	0·0336
$\alpha = 12.5°$ $\phi =$	12·9°	0·3101	0·2829	0·2307	0·1771	0·1122	0·1182	0·1322	0·1281	0·1423	0·1396	0·0118	0·0129	0·0146	0·0185
	38·6°	0·3100	0·2922	0·2369	0·1872	0·1216	0·1447	0·1354	0·1531	0·1437	0·1539	0·0122	0·0124	0·0130	0·0128
	64·3°	0·3137	0·2934	0·2586	0·2001	0·1616	0·1644	0·1824	0·1697	0·1838	0·1670	0·0154	0·0130	0·0169	0·0127
	90·0°	0·3133	0·3087	0·2729	0·2287	0·1866	0·2090	0·1898	0·2087	0·1892	0·2000	0·0162	0·0219	0·0194	0·0206
	115·7°	0·3151	0·3139	0·2999	0·2591	0·2392	0·2329	0·2468	0·2288	0·2371	0·2137		0·0230	0·0314	0·0238
	141·4°	0·3171	0·3288	0·3132	0·2934	0·2584	0·2690	0·2514	0·2618	0·2430	0·2448	0·0236	0·0387	0·0340	0·0342
	167·1°	0·3176	0·3274	0·3246	0·3044	0·2807	0·2817	0·2802	0·2946	0·2678	0·2571	0·0289	0·0422	0·0408	0·0372
$\alpha = 15°$ $\phi =$	12·9°	0·3059	0·2715	0·2159	0·1615	0·1013	0·1055	0·1200	0·1159	0·1277	0·1255	0·0102	0·0119	0·0136	0·0183
	38·6°	0·3059	0·2825	0·2268	0·1743	0·1103	0·1361	0·1231	0·1394	0·1310	0·1399	0·0107	0·0111	0·0120	0·0097
	64·3°	0·3084	0·2852	0·2476	0·1913	0·1563	0·1573	0·1727	0·1564	0·1708	0·1538	0·0140	0·0118	0·0156	0·0103
	90·0°	0·3084	0·3042	0·2664	0·2352	0·1838	0·2050	0·1813	0·2052	0·1790	0·1928	0·0151	0·0224	0·0184	0·0198
	115·7°	0·3110	0·3076	0·2991	0·2605	0·2439	0·2313	0·2483	0·2269	0·2364	0·2140		0·0289	0·0327	0·0240
	141·4°	0·3112	0·3256	0·3116	0·3021	0·2667	0·2358	0·2550	0·2651	0·2445	0·2430	0·0246	0·0439	0·0361	0·0381
	167·1°	0·3111	0·3238	0·3256	0·3097	0·2904	0·2916	0·2873	0·2801	0·2729	0·2609	0·0325	0·0484	0·0461	0·0414
$\alpha = 17.5°$ $\phi =$	12·9°	0·2941	0·2590	0·1994	0·1465	0·0912	0·0943	0·1079	0·1018	0·1129	0·1121	0·0088	0·0109	0·0128	0·0184
	38·6°	0·2956	0·2677	0·2116	0·1614	0·0997	0·1244	0·1129	0·1285	0·1129	0·1255	0·0093	0·0096	0·0110	0·0093
	64·3°	0·2977	0·2730	0·2349	0·1830	0·1505	0·1446	0·1620	0·1422	0·1587	0·1394	0·0128	0·0106	0·0143	0·0082
	90·0°	0·2994	0·2937	0·2612	0·2278	0·1792	0·1997	0·1707	0·1962	0·1802	0·1844	0·0152	0·0234	0·0186	0·0192
	115·7°	0·3020	0·3004	0·2938	0·2593	0·2458	0·2280	0·2494	0·2228	0·2358	0·2090		0·0311	0·0341	0·0244
	141·4°	0·3036	0·3219	0·3145	0·3092	0·2723	0·2444	0·2581	0·2301	0·2482	0·2486	0·0260	0·0501	0·0385	0·0424
	167·1°	0·3057	0·3232	0·3294	0·3164	0·3021	0·2982	0·2927	0·2840	0·2782	0·2652	0·0370	0·0558	0·0522	0·0470

Table 7

(p/p_0) FOR MODELS 14 AND 15

TRUNCATED CONE-CYLINDER



f	0.300
2r/D	
d/D	0.400
θ	45
θ°	
R/D	

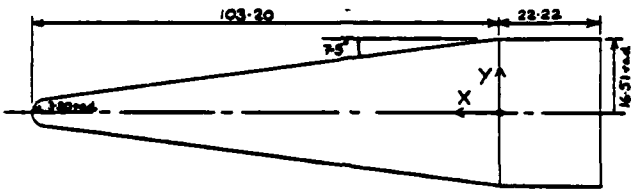
$C_{D_{P(\alpha=0^\circ)}} = 1.0740$

Model No.		14	15	14	15	14	15	14	15	14	15	14	15	14	15
	X	132.72	132.72	132.72	132.72	132.72	130.18	127.64	125.10	122.56	120.02	116.18	92.08	66.68	41.28
	Y	0	2.54	5.08	7.62	9.50	12.70	15.24	17.78	20.32	22.86	25.40	25.40	25.40	25.40
$\alpha = 0^\circ$		0.3310	0.3292	0.3242	0.3089	0.2717	0.1692	0.2036	0.2101	0.2114	0.2150	0.0195	0.0207	0.0227	0.0248
$\alpha = 2.5^\circ$	$\beta =$ 12.9°	0.3291	0.3227	0.3189	0.3007	0.2643	0.1440	0.1871	0.1987	0.1918	0.1964	0.0177	0.0190	0.0196	0.0240
	39.6°	0.3302	0.3228	0.3209	0.3039	0.2623	0.1498	0.1876	0.1968	0.1984	0.2050	0.0187	0.0195	0.0206	0.0223
	64.5°	0.3283	0.3236	0.3178	0.3057	0.2637	0.1508	0.1931	0.1986	0.1962	0.2055	0.0189	0.0196	0.0205	0.0237
	90.0°	0.3283	0.3257	0.3252	0.3091	0.2727	0.1707	0.2046	0.2145	0.2124	0.2198	0.0200	0.0210	0.0240	0.0243
	115.5°	0.3268	0.3284	0.3252	0.3118	0.2759	0.1795	0.2113	0.2162	0.2192	0.2269	0.0194	0.0214	0.0238	0.0255
	141.4°	0.3311	0.3309	0.3248	0.3120	0.2759	0.1796	0.2208	0.2280	0.2252	0.2285	0.0208	0.0225	0.0260	0.0260
	167.1°	0.3294	0.3244	0.3292	0.3118	0.2737	0.2030	0.2232	0.2291	0.2279	0.2286	0.021	0.0235	0.0261	0.0263
$\alpha = 5^\circ$	$\beta =$ 12.9°	0.3280	0.3183	0.3145	0.2971	0.2603	0.0940	0.1721	0.1917	0.1930	0.1853	0.0167	0.0182	0.0178	0.0218
	39.6°	0.3234	0.3203	0.3130	0.2989	0.2584	0.1421	0.1734	0.1835	0.1820	0.1934	0.0171	0.0181	0.0188	0.0202
	64.5°	0.3288	0.3209	0.3157	0.3034	0.2611	0.1463	0.1820	0.1892	0.1919	0.1993	0.0178	0.0186	0.0189	0.0217
	90.0°	0.3288	0.3236	0.3185	0.3034	0.2690	0.1788	0.2087	0.2139	0.2133	0.2187	0.0195	0.0208	0.0245	0.0234
	115.5°	0.3235	0.3234	0.3204	0.3087	0.2728	0.1963	0.2164	0.2214	0.2216	0.2227	0.0195	0.0228	0.0249	0.0254
	141.4°	0.3227	0.3298	0.3262	0.3123	0.2824	0.2235	0.2329	0.2387	0.2386	0.2349	0.0216	0.0240	0.0290	0.0234
	167.1°	0.3258	0.3250	0.3238	0.3152	0.2824	0.2343	0.2386	0.2437	0.2413	0.2388	0.0220	0.0238	0.0282	0.0284
$\alpha = 7.5^\circ$	$\beta =$ 12.9°	0.3241	0.3184	0.3150	0.2969	0.2546	0.0870	0.1372	0.1567	0.1581	0.1445	0.0152	0.0172	0.0169	0.0200
	39.6°	0.3213	0.3198	0.3144	0.2981	0.2548	0.1290	0.1400	0.1698	0.1586	0.1789	0.0162	0.0165	0.0175	0.0181
	64.5°	0.3246	0.3184	0.3147	0.3000	0.2588	0.1424	0.1709	0.1768	0.1789	0.1893	0.0165	0.0170	0.0173	0.0191
	90.0°	0.3234	0.3214	0.3157	0.3044	0.2671	0.1923	0.2122	0.2137	0.2129	0.2155	0.0188	0.0212	0.0249	0.0221
	115.5°	0.3212	0.3204	0.3185	0.3091	0.2744	0.2132	0.2198	0.2235	0.2216	0.2224	0.0193	0.0217	0.0254	0.0252
	141.4°	0.3211	0.3244	0.3238	0.3135	0.2818	0.2308	0.2321	0.2491	0.2483	0.2417	0.0220	0.0304	0.0321	0.0290
	167.1°	0.3220	0.3223	0.3228	0.3172	0.2901	0.2584	0.2535	0.2559	0.2504	0.2472	0.0224	0.0327	0.0327	0.0309
$\alpha = 10^\circ$	$\beta =$ 12.9°	0.3091	0.3191	0.3087	0.2884	0.2439	0.0584	0.1116	0.1384	0.1443	0.1484	0.0136	0.0163	0.0172	0.0186
	39.6°	0.3241	0.3202	0.3161	0.2919	0.2540	0.1131	0.1481	0.1567	0.1586	0.1628	0.0144	0.0146	0.0158	0.0157
	64.5°	0.3251	0.3199	0.3139	0.2992	0.2544	0.1314	0.1620	0.1688	0.1649	0.1743	0.0146	0.0152	0.0157	0.0160
	90.0°	0.3289	0.3247	0.3178	0.3045	0.2705	0.2044	0.2140	0.2128	0.2113	0.2122	0.0185	0.0215	0.0251	0.0209
	115.5°	0.3248	0.3240	0.3214	0.3080	0.2759	0.2204	0.2230	0.2244	0.2206	0.2203	0.0186	0.0223	0.0241	0.0248
	141.4°	0.3229	0.3275	0.3226	0.3163	0.2828	0.2425	0.2434	0.2564	0.2549	0.2453	0.0224	0.0351	0.0358	0.0312
	167.1°	0.3247	0.3257	0.3229	0.3132	0.2844	0.2317	0.2452	0.2447	0.2581	0.2572	0.0227	0.0383	0.0368	0.0340
$\alpha = 12.5^\circ$	$\beta =$ 12.9°	0.3218	0.3134	0.3024	0.2870	0.2419	0.0485	0.0901	0.1224	0.1311	0.1338	0.0120	0.0148	0.0172	0.0184
	39.6°	0.3194	0.3159	0.3081	0.2851	0.2485	0.1051	0.1353	0.1434	0.1441	0.1473	0.0133	0.0124	0.0138	0.0130
	64.5°	0.3209	0.3144	0.3081	0.2938	0.2490	0.1204	0.1532	0.1584	0.1551	0.1623	0.0135	0.0139	0.0140	0.0130
	90.0°	0.3209	0.3202	0.3168	0.3017	0.2696	0.2044	0.2135	0.2086	0.2100	0.2065	0.0175	0.0221	0.0253	0.0198
	115.5°	0.3212	0.3211	0.3206	0.3101	0.2734	0.2357	0.2253	0.2263	0.2197	0.2196	0.0176	0.0293	0.0263	0.0249
	141.4°	0.3208	0.3257	0.3256	0.3214	0.3023	0.2332	0.2318	0.2624	0.2592	0.2492	0.022810.0401		0.0396	0.0341
	167.1°	0.3208	0.3249	0.3224	0.3255	0.3074	0.2829	0.2784	0.2724	0.2632	0.2570	0.0230	0.0448	0.0406	0.0377
$\alpha = 15^\circ$	$\beta =$ 12.9°	0.3162	0.3083	0.2986	0.2855	0.2347	0.0493	0.0950	0.1041	0.1169	0.1217	0.0110	0.0131	0.0169	0.0186
	39.6°	0.3163	0.3115	0.3024	0.2814	0.2411	0.0932	0.1243	0.1334	0.1354	0.1353	0.0122	0.0107	0.0119	0.0105
	64.5°	0.3159	0.3123	0.3031	0.2867	0.2416	0.1096	0.1447	0.1431	0.1433	0.1518	0.0121	0.0128	0.0123	0.0108
	90.0°	0.3158	0.3170	0.3144	0.2968	0.2621	0.2089	0.2113	0.2041	0.2054	0.2004	0.0168	0.0228	0.0253	0.0189
	115.5°	0.3162	0.3183	0.3159	0.3089	0.2709	0.2374	0.2244	0.2242	0.2173	0.2184	0.0179	0.0314	0.0247	0.0253
	141.4°	0.3165	0.3232	0.3260	0.3224	0.3108	0.2812	0.2772	0.2648	0.2632	0.2516	0.0228	0.0458	0.0433	0.0373
	167.1°	0.3167	0.3219	0.3262	0.3246	0.3158	0.2935	0.2817	0.2783	0.2683	0.2612	0.0230	0.0507	0.0446	0.0422
$\alpha = 17.5^\circ$	$\beta =$ 12.9°	0.3127	0.3034	0.2921	0.2624	0.2298	0.0384	0.0602	0.0887	0.1021	0.1098	0.0099	0.0119	0.0156	0.0184
	39.6°	0.3123	0.3065	0.2952	0.2745	0.2350	0.0783	0.1177	0.1213	0.1268	0.1229	0.0111	0.0092	0.0101	0.0087
	64.5°	0.3125	0.3052	0.2985	0.2793	0.2399	0.1007	0.1410	0.1401	0.1328	0.1403	0.0114	0.0115	0.0106	0.0088
	90.0°	0.3153	0.3125	0.3140	0.2927	0.2677	0.2091	0.2120	0.1984	0.2050	0.1919	0.0170	0.0231	0.0255	0.0183
	115.5°	0.3127	0.3129	0.3112	0.3059	0.2697	0.2323	0.2225	0.2225	0.2131	0.2134	0.0165	0.0341	0.02720.0262	
	141.4°	0.3124	0.3200	0.3221	0.3193	0.3182	0.2896	0.2841	0.2719	0.2679	0.2537	0.0233	0.0514	0.04800.0414	
	167.1°	0.3126	0.3196	0.3219	0.3269	0.3215	0.3085	0.2903	0.2841	0.2735	0.2649	0.0238	0.0569	0.05010.0481	

Table 8

(p/p_0) FOR MODELS 16 AND 17

SPHERICALLY-BLUNTED CONE-CYLINDER



ℓ	3·125
2r/D	0·198
d/D	0·200
θ_c	7·5
θ_n	
R/D	

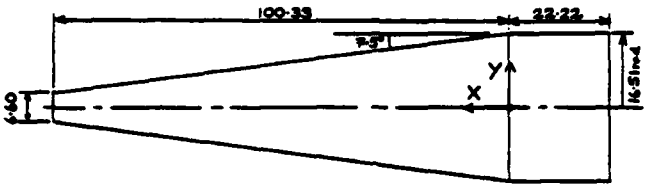
$C_{D_{P(\alpha=0°)}} = 0·0600$

Model No.		16	17	16	17	16	17	16	17	16	17	16
X		103·20	102·76	100·33	87·79	75·25	63·67	50·17	37·63	25·09	12·55	0
Y		0	1·65	3·30	4·95	6·60	8·13	9·91	11·56	13·21	14·86	16·51
$\alpha = 0°$		0·3277	0·2629	0·0384	0·0333	0·0339	0·0338	0·0341	0·0340	0·0344	0·0343	0·0294
$\alpha = 2·5°$	$\phi =$ 12·9°	0·3236	0·2519	0·0348	0·0306	0·0313	0·0311	0·0311	0·0318	0·0316	0·0315	0·0278
	38·6°	0·3241	0·2508	0·0346	0·0315	0·0314	0·0309	0·0315	0·0325	0·0323	0·0324	0·0288
	64·5°	0·3245	0·2585	0·0362	0·0322	0·0324	0·0326	0·0332	0·0330	0·0324	0·0325	0·0284
	90·0°	0·3241	0·2598	0·0378	0·0331	0·0332	0·0331	0·0337	0·0337	0·0343	0·0350	0·0305
	115·7°	0·3252	0·2669	0·0412	0·0352	0·0355	0·0355	0·0357	0·0352	0·0356	0·0362	0·0314
	141·4°	0·3239	0·2682	0·0423	0·0358	0·0363	0·0349	0·0370	0·0347	0·0373	0·0373	0·0323
	167·1°	0·3262	0·2729	0·0457	0·0390	0·0385	0·0376	0·0376	0·0374	0·0381	0·0380	0·0315
$\alpha = 5°$	$\phi =$ 12·9°	0·3228	0·2620	0·0296	0·0284	0·0288	0·0290	0·0295	0·0294	0·0292	0·0296	0·0259
	38·6°	0·3242	0·2441	0·0312	0·0289	0·0288	0·0284	0·0297	0·0296	0·0299	0·0296	0·0263
	64·5°	0·3239	0·2528	0·0344	0·0300	0·0304	0·0299	0·0311	0·0304	0·0297	0·0301	0·0261
	90·0°	0·3233	0·2588	0·0379	0·0331	0·0319	0·0320	0·0324	0·0323	0·0328	0·0330	0·0290
	115·7°	0·3241	0·2709	0·0434	0·0365	0·0344	0·0346	0·0347	0·0342	0·0348	0·0371	0·0323
	141·4°	0·3229	0·2759	0·0463	0·0388	0·0385	0·0401	0·0404	0·0396	0·0404	0·0402	0·0342
	167·1°	0·3240	0·2846	0·0492	0·0420	0·0424	0·0423	0·0429	0·0417	0·0426	0·0421	0·0345
$\alpha = 7·5°$	$\phi =$ 12·9°	0·3233	0·2292	0·0257	0·0242	0·0243	0·0234	0·0278	0·0277	0·0274	0·0274	0·0242
	38·6°	0·3234	0·2338	0·0284	0·0262	0·0259	0·0258	0·0279	0·0269	0·0271	0·0272	0·0238
	64·5°	0·3233	0·2435	0·0323	0·0295	0·0294	0·0268	0·0273	0·0268	0·0263	0·0268	0·0230
	90·0°	0·3231	0·2583	0·0381	0·0321	0·0301	0·0298	0·0303	0·0302	0·0302	0·0302	0·0269
	115·7°	0·3240	0·2756	0·0455	0·0384	0·0378	0·0374	0·0379	0·0371	0·0376	0·0380	0·0329
	141·4°	0·3237	0·2834	0·0512	0·0434	0·0439	0·0438	0·0444	0·0434	0·0441	0·0437	0·0376
	167·1°	0·3238	0·2922	0·0555	0·0468	0·0486	0·0484	0·0490	0·0474	0·0484	0·0481	0·0416
$\alpha = 10°$	$\phi =$ 12·9°	0·3195	0·2174	0·0226	0·0240	0·0243	0·0241	0·0244	0·0259	0·0259	0·0257	0·0225
	38·6°	0·3190	0·2234	0·0252	0·0235	0·0228	0·0234	0·0247	0·0242	0·0243	0·0244	0·0211
	64·5°	0·3188	0·2407	0·0304	0·0248	0·0235	0·0222	0·0222	0·0222	0·0215	0·0224	0·0186
	90·0°	0·3188	0·2553	0·0388	0·0304	0·0277	0·0270	0·0275	0·0270	0·0272	0·0268	0·0240
	115·7°	0·3198	0·2740	0·0483	0·0408	0·0397	0·0389	0·0397	0·0384	0·0389	0·0394	0·0338
	141·4°	0·3187	0·2898	0·0574	0·0462	0·0467	0·0485	0·0491	0·0479	0·0486	0·0481	0·0420
	167·1°	0·3198	0·3000	0·0628	0·0534	0·0541	0·0557	0·0568	0·0544	0·0542	0·0552	0·0482
$\alpha = 12·5°$	$\phi =$ 12·9°	0·3189	0·2060	0·0198	0·0221	0·0224	0·0243	0·0247	0·0237	0·0246	0·0240	0·0204
	38·6°	0·3178	0·2134	0·0221	0·0209	0·0199	0·0209	0·0222	0·0220	0·0215	0·0218	0·0189
	64·5°	0·3177	0·2395	0·0285	0·0218	0·0189	0·0174	0·0170	0·0168	0·0161	0·0165	0·0138
	90·0°	0·3180	0·2483	0·0392	0·0291	0·0256	0·0290	0·0257	0·0250	0·0255	0·0248	0·0221
	115·7°	0·3187	0·2825	0·0512	0·0491	0·0416	0·0413	0·0419	0·0404	0·0408	0·0413	0·0355
	141·4°	0·3181	0·2917	0·0631	0·0577	0·0544	0·0535	0·0549	0·0534	0·0540	0·0542	0·0490
	167·1°	0·3191	0·3087	0·0704	0·0644	0·0649	0·0630	0·0653	0·0620	0·0647	0·0633	0·0563
$\alpha = 15°$	$\phi =$ 12·9°	0·3125	0·1895	0·0166	0·0201	0·0216	0·0215	0·0193	0·0184	0·0176	0·0186	0·0142
	38·6°	0·3120	0·1992	0·0196	0·0187	0·0171	0·0131	0·0180	0·0135	0·0135	0·0170	0·0156
	64·5°	0·3105	0·2269	0·0267	0·0191	0·0157	0·0144	0·0141	0·0134	0·0135	0·0136	0·0117
	90·0°	0·3107	0·2459	0·0376	0·0295	0·0237	0·0234	0·0248	0·0241	0·0246	0·0240	0·0212
	115·7°	0·3119	0·2810	0·0544	0·0447	0·0388	0·0434	0·0444	0·0431	0·0429	0·0434	0·0374
	141·4°	0·3124	0·2994	0·0685	0·0586	0·0605	0·0594	0·0609	0·0591	0·0597	0·0604	0·0518
	167·1°	0·3130	0·3152	0·0815	0·0702	0·0745	0·0723	0·0748	0·0703	0·0733	0·0723	0·0633
$\alpha = 17·5°$	$\phi =$ 12·9°	0·3044	0·1723	0·0141	0·0171	0·0168	0·0157	0·0138	0·0128	0·0135	0·0128	0·0102
	38·6°	0·3040	0·1834	0·0171	0·0158	0·0135	0·0134	0·0144	0·0143	0·0140	0·0144	0·0132
	64·5°	0·3023	0·2132	0·0247	0·0159	0·0129	0·0125	0·0123	0·0121	0·0118	0·0121	0·0103
	90·0°	0·3023	0·2375	0·0373	0·0269	0·0227	0·0232	0·0245	0·0235	0·0242	0·0236	0·0208
	115·7°	0·3036	0·2811	0·0572	0·0425	0·0469	0·0473	0·0479	0·0469	0·0460	0·0464	0·0399
	141·4°	0·3044	0·3002	0·0754	0·0655	0·0676	0·0662	0·0679	0·0652	0·0670	0·0666	0·0578
	167·1°	0·3050	0·3203	0·0931	0·0812	0·0857	0·0830	0·0847	0·0800	0·0837	0·0823	0·0723

Table 9

(p/p_0) FOR MODELS 18 AND 19

TRUNCATED CONE-CYLINDER



ℓ	3·038
$2r_0/D$	
d/D	0·200
$\theta_c°$	7·5
$\theta_n°$	
R/D	

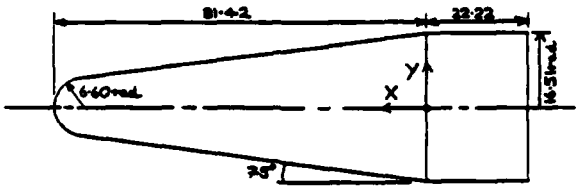
$C_{D_{P(\alpha=0°)}} = 0·0940$

Model No.		18	19	18	19	18	19	18	19	18	19	18
	X	100·33	100·33	100·26	87·79	75·25	62·67	50·17	37·63	25·09	12·55	0
	Y	0	1·65	3·31	4·95	6·60	8·13	9·91	11·56	13·21	14·86	16·51
$\alpha = 0°$		0·3268	0·3219	0·0157	0·0340	0·0332	0·0382	0·0336	0·0335	0·0342	0·0340	0·0290
$\alpha = 2·5°$	$\beta =$ 12·9°	0·3229	0·3169	0·0163	0·0320	0·0306	0·0305	0·0310	0·0310	0·0315	0·0314	0·0269
	38·6°	0·3248	0·3162	0·0161	0·0330	0·0304	0·0304	0·0318	0·0312	0·0323	0·0315	0·0280
	64·5°	0·3229	0·3184	0·0156	0·0328	0·0321	0·0321	0·0328	0·0318	0·0322	0·0319	0·0273
	90·0°	0·3258	0·3189	0·0150	0·0342	0·0324	0·0328	0·0329	0·0336	0·0343	0·0341	0·0294
	115·7°	0·3234	0·3195	0·0155	0·0356	0·0346	0·0346	0·0350	0·0344	0·0356	0·0349	0·0299
	141·4°	0·3241	0·3187	0·0151	0·0358	0·0350	0·0342	0·0368	0·0340	0·0371	0·0364	0·0309
	167·1°	0·3234	0·3222	0·0160	0·0321	0·0361	0·0346	0·0349	0·0349	0·0378	0·0371	0·0316
$\alpha = 5°$	$\beta =$ 12·9°	0·3231	0·3141	0·0165	0·0300	0·0283	0·0285	0·0290	0·0292	0·0293	0·0295	0·0254
	38·6°	0·3251	0·3153	0·0156	0·0306	0·0283	0·0282	0·0295	0·0292	0·0300	0·0295	0·0255
	64·5°	0·3236	0·3178	0·0146	0·0310	0·0302	0·0299	0·0304	0·0293	0·0294	0·0294	0·0249
	90·0°	0·3241	0·3178	0·0145	0·0342	0·0313	0·0314	0·0317	0·0321	0·0328	0·0325	0·0277
	115·7°	0·3245	0·3202	0·0152	0·0371	0·0356	0·0358	0·0362	0·0353	0·0365	0·0359	0·0306
	141·4°	0·3242	0·3204	0·0161	0·0391	0·0376	0·0395	0·0399	0·0390	0·0403	0·0394	0·0333
	167·1°	0·3240	0·3244	0·0180	0·0414	0·0408	0·0414	0·0419	0·0414	0·0426	0·0416	0·0353
$\alpha = 7·5°$	$\beta =$ 12·9°	0·3238	0·3135	0·0154	0·0279	0·0246	0·0247	0·0274	0·0272	0·0274	0·0274	0·0237
	38·6°	0·3242	0·3134	0·0146	0·0272	0·0260	0·0263	0·0273	0·0270	0·0278	0·0267	0·0229
	64·5°	0·3242	0·3161	0·0138	0·0291	0·0283	0·0245	0·0248	0·0238	0·0260	0·0260	0·0214
	90·0°	0·3237	0·3190	0·0133	0·0333	0·0298	0·0294	0·0282	0·0295	0·0304	0·0296	0·0255
	115·7°	0·3234	0·3216	0·0157	0·0391	0·0349	0·0353	0·0374	0·0344	0·0375	0·0368	0·0310
	141·4°	0·3244	0·3241	0·0184	0·0432	0·0432	0·0431	0·0438	0·0430	0·0448	0·0433	0·0362
	167·1°	0·3248	0·3234	0·0212	0·0468	0·0469	0·0477	0·0485	0·0471	0·0480	0·0474	0·0406
$\alpha = 10°$	$\beta =$ 12·9°	0·3213	0·3100	0·0128	0·0254	0·0253	0·0251	0·0259	0·0253	0·0256	0·0253	0·0218
	38·6°	0·3236	0·3109	0·0125	0·0246	0·0234	0·0245	0·0248	0·0248	0·0250	0·0241	0·0204
	64·5°	0·3224	0·3140	0·0112	0·0267	0·0237	0·0217	0·0215	0·0209	0·0212	0·0214	0·0171
	90·0°	0·3212	0·3191	0·0123	0·0317	0·0271	0·0244	0·0263	0·0263	0·0275	0·0263	0·0226
	115·7°	0·3207	0·3205	0·0167	0·0408	0·0388	0·0393	0·0394	0·0380	0·0393	0·0381	0·0330
	141·4°	0·3221	0·3230	0·0218	0·0473	0·0474	0·0482	0·0483	0·0476	0·0488	0·0481	0·0401
	167·1°	0·3225	0·3232	0·0234	0·0534	0·0545	0·0562	0·0565	0·0534	0·0548	0·0548	0·0466
$\alpha = 12·5°$	$\beta =$ 12·9°	0·3220	0·3094	0·0107	0·0231	0·0242	0·0210	0·0237	0·0224	0·0223	0·0223	0·0185
	38·6°	0·3234	0·3095	0·0102	0·0219	0·0215	0·0224	0·0221	0·0222	0·0226	0·0218	0·0187
	64·5°	0·3230	0·3144	0·0092	0·0243	0·0196	0·0174	0·0164	0·0154	0·0161	0·0155	0·0129
	90·0°	0·3222	0·3188	0·0119	0·0308	0·0250	0·0244	0·0248	0·0246	0·0255	0·0247	0·0209
	115·7°	0·3230	0·3229	0·0180	0·0434	0·0416	0·0419	0·0482	0·0403	0·0416	0·0399	0·0336
	141·4°	0·3224	0·3241	0·0264	0·0530	0·0531	0·0535	0·0549	0·0532	0·0546	0·0534	0·0448
	167·1°	0·3224	0·3321	0·0309	0·0646	0·0648	0·0646	0·0658	0·0627	0·0650	0·0626	0·0535
$\alpha = 15°$	$\beta =$ 12·9°	0·3224	0·3024	0·0098	0·0204	0·0232	0·0217	0·0208	0·0178	0·0152	0·0168	0·0125
	38·6°	0·3211	0·3046	0·0095	0·0183	0·0181	0·0162	0·0163	0·0139	0·0179	0·0172	0·0154
	64·5°	0·3198	0·3093	0·0091	0·0218	0·0163	0·0148	0·0140	0·0133	0·0139	0·0131	0·0111
	90·0°	0·3181	0·3152	0·0119	0·0298	0·0235	0·0233	0·0224	0·0239	0·0247	0·0241	0·0200
	115·7°	0·3189	0·3204	0·0209	0·0442	0·0444	0·0449	0·0453	0·0430	0·0442	0·0423	0·0354
	141·4°	0·3189	0·3248	0·0321	0·0584	0·0585	0·0588	0·0607	0·0584	0·0606	0·0593	0·0491
	167·1°	0·3189	0·3307	0·0400	0·0749	0·0738	0·0758	0·0756	0·0712	0·0740	0·0710	0·0604
$\alpha = 17·5°$	$\beta =$ 12·9°	0·3143	0·2943	0·0089	0·0172	0·0209	0·0170	0·0143	0·0119	0·0152	0·0127	0·0100
	38·6°	0·3158	0·2980	0·0089	0·0150	0·0140	0·0130	0·0150	0·0151	0·0165	0·0148	0·0130
	64·5°	0·3151	0·3043	0·0086	0·0192	0·0134	0·0129	0·0126	0·0121	0·0126	0·0117	0·0099
	90·0°	0·3141	0·3104	0·0118	0·0286	0·0222	0·0232	0·0239	0·0237	0·0243	0·0236	0·0196
	115·7°	0·3144	0·3144	0·0209	0·0443	0·0427	0·0438	0·0438	0·0441	0·0452	0·0463	0·0379
	141·4°	0·3140	0·3214	0·0404	0·0645	0·0672	0·0649	0·0678	0·0644	0·0675	0·0657	0·0546
	167·1°	0·3142	0·3286	0·0522	0·0833	0·0859	0·0859	0·0864	0·0817	0·0842	0·0810	0·0691

Table 10

(p/p_0) FOR MODELS 20 AND 21

SPHERICALLY-BLUNTED CONE-CYLINDER



f	2·446
2r/D	0·397
d/D	0·400
θ_1	7·5
θ_2	
R/D	

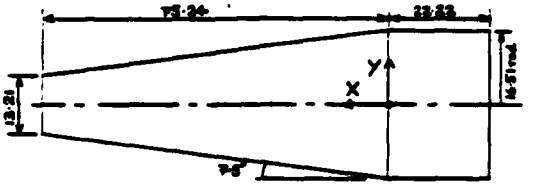
$C_{D_{P(\alpha=0°)}} = 0·1600$

Model No.		20	21	20	21	20	21	20	21	20	21	20
	X	81·42	81·21	80·53	79·18	75·24	63·66	50·15	37·61	25·07	12·53	0
	Y	0	1·65	3·30	4·95	6·60	8·13	9·91	11·56	13·21	14·86	16·51
$\alpha = 0°$		0·3267	0·3116	0·2541	0·1930	0·0348	0·0340	0·0325	0·0328	0·0329	0·0334	0·0274
$\alpha = 2·5°$	ϕ = 12·9°	0·3271	0·3176	0·2446	0·1434	0·0306	0·0302	0·0298	0·0300	0·0300	0·0302	0·0258
	38·6°	0·3275	0·3199	0·2469	0·1438	0·0306	0·0308	0·0302	0·0301	0·0309	0·0315	0·0264
	64·3°	0·3268	0·3113	0·2493	0·1431	0·0327	0·0329	0·0317	0·0311	0·0312	0·0314	0·0262
	90·0°	0·3257	0·3127	0·2547	0·1528	0·0338	0·0339	0·0319	0·0331	0·0327	0·0342	0·0280
	115·7°	0·3262	0·3129	0·2590	0·1584	0·0344	0·0340	0·0344	0·0342	0·0341	0·0344	0·0282
	141·4°	0·3264	0·3166	0·2629	0·1613	0·0371	0·0347	0·0351	0·0355	0·0361	0·0353	0·0292
	167·1°	0·3292	0·3123	0·2639	0·1640	0·0388	0·0382	0·0356	0·0362	0·0362	0·0368	0·0296
$\alpha = 5°$	ϕ = 12·9°	0·3231	0·3099	0·2350	0·1312	0·0241	0·0275	0·0278	0·0274	0·0282	0·0284	0·0243
	38·6°	0·3263	0·3062	0·2385	0·1333	0·0278	0·0280	0·0279	0·0289	0·0292	0·0298	0·0245
	64·3°	0·3257	0·3083	0·2444	0·1420	0·0309	0·0312	0·0297	0·0288	0·0294	0·0294	0·0246
	90·0°	0·3273	0·3108	0·2542	0·1514	0·0336	0·0314	0·0311	0·0322	0·0321	0·0330	0·0292
	115·7°	0·3252	0·3142	0·2628	0·1642	0·0389	0·0381	0·0359	0·0355	0·0353	0·0358	0·0299
	141·4°	0·3255	0·3190	0·2704	0·1710	0·0411	0·0401	0·0381	0·0385	0·0390	0·0395	0·0319
	167·1°	0·3256	0·3172	0·2740	0·1720	0·0441	0·0432	0·0404	0·0408	0·0408	0·0413	0·0336
$\alpha = 7·5°$	ϕ = 12·9°	0·3230	0·2946	0·2217	0·1184	0·0226	0·0248	0·0254	0·0258	0·0263	0·0269	0·0232
	38·6°	0·3259	0·2990	0·2261	0·1223	0·0239	0·0254	0·0254	0·0255	0·0271	0·0270	0·0223
	64·3°	0·3258	0·3044	0·2388	0·1352	0·0292	0·0295	0·0284	0·0265	0·0266	0·0241	0·0218
	90·0°	0·3258	0·3088	0·2708	0·1493	0·0333	0·0329	0·0304	0·0309	0·0304	0·0308	0·0253
	115·7°	0·3253	0·3174	0·2648	0·1703	0·0412	0·0402	0·0355	0·0348	0·0367	0·0369	0·0309
	141·4°	0·3259	0·3229	0·2393	0·1817	0·0457	0·0444	0·0418	0·0424	0·0429	0·0436	0·0351
	167·1°	0·3257	0·3216	0·2856	0·1907	0·0503	0·0491	0·0461	0·0463	0·0464	0·0470	0·0386
$\alpha = 10°$	ϕ = 12·9°	0·3216	0·2834	0·2022	0·1041	0·0193	0·0223	0·0235	0·0244	0·0254	0·0255	0·0218
	38·6°	0·3206	0·2885	0·2173	0·1107	0·0210	0·0230	0·0231	0·0228	0·0241	0·0247	0·0199
	64·3°	0·3204	0·2989	0·2301	0·1293	0·0233	0·0234	0·0247	0·0230	0·0224	0·0216	0·0177
	90·0°	0·3210	0·3035	0·2446	0·1463	0·0325	0·0314	0·0293	0·0289	0·0283	0·0272	0·0232
	115·7°	0·3214	0·3138	0·2721	0·1757	0·0439	0·0425	0·0392	0·0388	0·0385	0·0384	0·0319
	141·4°	0·3212	0·3224	0·2844	0·1912	0·0510	0·0488	0·0463	0·0468	0·0477	0·0481	0·0391
	167·1°	0·3208	0·3243	0·2941	0·2049	0·0547	0·0558	0·0529	0·0534	0·0538	0·0539	0·0448
$\alpha = 12·5°$	ϕ = 12·9°	0·3144	0·2822	0·1941	0·0951	0·0165	0·0204	0·0217	0·0233	0·0243	0·0240	0·0205
	38·6°	0·3182	0·2854	0·2007	0·1013	0·0185	0·0208	0·0198	0·0198	0·0212	0·0228	0·0180
	64·3°	0·3124	0·2898	0·2213	0·1215	0·0258	0·0252	0·0216	0·0194	0·0185	0·0174	0·0140
	90·0°	0·3134	0·2962	0·2408	0·1443	0·0322	0·0309	0·0281	0·0272	0·0263	0·0248	0·0213
	115·7°	0·3135	0·3111	0·2722	0·1797	0·0444	0·0447	0·0411	0·0408	0·0404	0·0404	0·0333
	141·4°	0·3141	0·3201	0·2885	0·1984	0·0544	0·0538	0·0513	0·0522	0·0532	0·0532	0·0434
	167·1°	0·3134	0·3248	0·3042	0·2134	0·0640	0·0628	0·0608	0·0612	0·0621	0·0624	0·0515
$\alpha = 15°$	ϕ = 12·9°	0·3069	0·2743	0·1818	0·0854	0·0143	0·0189	0·0200	0·0222	0·0230	0·0222	0·0186
	38·6°	0·3068	0·2451	0·1884	0·0927	0·0165	0·0183	0·0169	0·0162	0·0174	0·0181	0·0140
	64·3°	0·3053	0·2817	0·2160	0·1149	0·0242	0·0234	0·0189	0·0164	0·0153	0·0143	0·0116
	90·0°	0·3074	0·2892	0·2367	0·1409	0·0319	0·0298	0·0248	0·0257	0·0250	0·0238	0·0202
	115·7°	0·3043	0·3044	0·2716	0·1838	0·0481	0·0432	0·0404	0·0432	0·0422	0·0431	0·0352
	141·4°	0·3045	0·3149	0·2904	0·2034	0·0613	0·0582	0·0535	0·0580	0·0598	0·0595	0·0487
	167·1°	0·3049	0·3237	0·3084	0·2293	0·0723	0·0708	0·0695	0·0704	0·0711	0·0714	0·0584
$\alpha = 17·5°$	ϕ = 12·9°	0·2988	0·2688	0·1659	0·0754	0·0120	0·0168	0·0189	0·0215	0·0199	0·0172	0·0147
	38·6°	0·2985	0·2828	0·1750	0·0833	0·0145	0·0163	0·0134	0·0128	0·0128	0·0129	0·0116
	64·3°	0·2993	0·2310	0·2045	0·1039	0·0224	0·0212	0·0163	0·0141	0·0128	0·0127	0·0100
	90·0°	0·2985	0·2811	0·2228	0·1343	0·0316	0·0291	0·0257	0·0244	0·0239	0·0230	0·0195
	115·7°	0·2978	0·3017	0·2703	0·1823	0·0521	0·0497	0·0444	0·0450	0·0461	0·0463	0·0379
	141·4°	0·2980	0·3130	0·2920	0·2133	0·0632	0·0600	0·0544	0·0557	0·0565	0·0561	0·0458
	167·1°	0·2984	0·3209	0·3138	0·2399	0·0821	0·0804	0·0808	0·0813	0·0818	0·0816	0·0667

Table 11

(p/p_0) FOR MODELS 22 AND 23

TRUNCATED CONE-CYLINDER



f	2.279
2r0	
d/D	0.400
θ	7.5
θ'	
R/D	

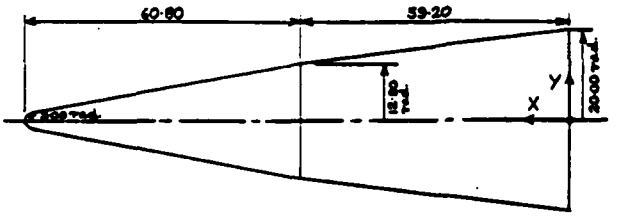
$C_{B_{P(\alpha=0^\circ)}} = 0.2780$

Model No.		22	23	22	23	22	23	22	23	22	23	22
	X	75.24	75.24	75.24	75.24	75.17	69.66	50.15	37.61	25.07	12.53	0
	Y	0	1.65	3.30	4.95	6.61	8.13	9.91	11.56	13.21	14.86	16.51
$\alpha = 0^\circ$		0.3271	0.3250	0.3206	0.3080	0.0143	0.0345	0.0334	0.0323	0.0324	0.0325	0.0283
$\alpha = 2.5^\circ$	$\beta =$ 12.9°	0.3242	0.3241	0.3194	0.3076	0.0131	0.0332	0.0310	0.0297	0.0299	0.0296	0.0259
	38.6°	0.3249	0.3262	0.3222	0.3043	0.0130	0.0329	0.0317	0.0308	0.0305	0.0305	0.0268
	64.5°	0.3292	0.3256	0.3212	0.3082	0.0128	0.0327	0.0323	0.0306	0.0309	0.0308	0.0268
	90.0°	0.3242	0.3253	0.3196	0.3115	0.0124	0.0355	0.0332	0.0325	0.0324	0.0333	0.0284
	115.5°	0.3249	0.3252	0.3218	0.3089	0.0124	0.0329	0.0346	0.0335	0.0332	0.0334	0.0295
	141.4°	0.3245	0.3247	0.3230	0.3102	0.0135	0.0407	0.0385	0.0344	0.0338	0.0381	0.0303
	167.1°	0.3231	0.3240	0.3219	0.3097	0.0134	0.0409	0.0342	0.0359	0.0357	0.0357	0.0308
$\alpha = 5^\circ$	$\beta =$ 12.9°	0.3235	0.3250	0.3193	0.3091	0.0125	0.0328	0.0291	0.0305	0.0298	0.0337	0.0245
	38.6°	0.3282	0.3244	0.3192	0.3081	0.0124	0.0338	0.0299	0.0282	0.0289	0.0284	0.0267
	64.5°	0.3282	0.3262	0.3210	0.3080	0.0120	0.0340	0.0309	0.0287	0.0290	0.0287	0.0268
	90.0°	0.3244	0.3275	0.3204	0.3102	0.0113	0.0384	0.0324	0.0317	0.0315	0.0324	0.0283
	115.5°	0.3238	0.3259	0.3224	0.3100	0.0117	0.0413	0.0358	0.0349	0.0351	0.0347	0.0304
	141.4°	0.3259	0.3284	0.3245	0.3151	0.0129	0.0448	0.0389	0.0378	0.0389	0.0383	0.0329
	167.1°	0.3282	0.3242	0.3239	0.3140	0.0132	0.0462	0.0404	0.0401	0.0403	0.0401	0.0351
$\alpha = 7.5^\circ$	$\beta =$ 12.9°	0.3231	0.3228	0.3153	0.2981	0.0118	0.0313	0.0273	0.0284	0.0264	0.0263	0.0230
	38.6°	0.3292	0.3242	0.3147	0.2980	0.0113	0.0318	0.0294	0.0261	0.0270	0.0264	0.0224
	64.5°	0.3291	0.3249	0.3211	0.3064	0.0108	0.0330	0.0284	0.0263	0.0261	0.0287	0.0224
	90.0°	0.3283	0.3248	0.3183	0.3082	0.0104	0.0385	0.0324	0.0306	0.0299	0.0295	0.0253
	115.5°	0.3281	0.3288	0.3253	0.3111	0.0114	0.0408	0.0352	0.0344	0.0344	0.0358	0.0312
	141.4°	0.3254	0.3275	0.3235	0.3183	0.0134	0.0468	0.0408	0.0418	0.0430	0.0482	0.0364
	167.1°	0.3238	0.3284	0.3284	0.3189	0.0151	0.0573	0.0463	0.0459	0.0464	0.0460	0.0407
$\alpha = 10^\circ$	$\beta =$ 12.9°	0.3245	0.3184	0.3102	0.2913	0.0101	0.0283	0.0254	0.0287	0.0251	0.0269	0.0218
	38.6°	0.3258	0.3204	0.3085	0.2921	0.0100	0.0279	0.0265	0.0241	0.0248	0.0243	0.0202
	64.5°	0.3238	0.3229	0.3187	0.3084	0.0092	0.0308	0.0282	0.0235	0.0224	0.0214	0.0186
	90.0°	0.3254	0.3213	0.3154	0.3044	0.0088	0.0353	0.0293	0.0291	0.0280	0.0278	0.0233
	115.5°	0.3245	0.3282	0.3269	0.3148	0.0124	0.0443	0.0339	0.0305	0.0286	0.0297	0.0329
	141.4°	0.3224	0.3248	0.3242	0.3139	0.0142	0.0534	0.0395	0.0444	0.0463	0.0470	0.0408
	167.1°	0.3242	0.3241	0.3295	0.3234	0.0182	0.0582	0.0534	0.0532	0.0524	0.0537	0.0477
$\alpha = 12.5^\circ$	$\beta =$ 12.9°	0.3205	0.3143	0.3034	0.2857	0.0088	0.0218	0.0233	0.0242	0.0239	0.0258	0.0204
	38.6°	0.3223	0.3146	0.3037	0.2822	0.0085	0.0216	0.0212	0.0216	0.0224	0.0224	0.0182
	64.5°	0.3234	0.3179	0.3133	0.2976	0.0078	0.0295	0.0234	0.0205	0.0191	0.0192	0.0145
	90.0°	0.3223	0.3182	0.3120	0.3013	0.0081	0.0358	0.0305	0.0277	0.0264	0.0255	0.0218
	115.5°	0.3208	0.3244	0.3251	0.3148	0.0142	0.0484	0.0422	0.0405	0.0408	0.0389	0.0351
	141.4°	0.3185	0.3228	0.3254	0.3188	0.0156	0.0579	0.0530	0.0526	0.0536	0.0531	0.0460
	167.1°	0.3200	0.3238	0.3304	0.3258	0.0216	0.0662	0.0620	0.0613	0.0630	0.0628	0.0553
$\alpha = 15^\circ$	$\beta =$ 12.9°	0.3154	0.3082	0.2986	0.2787	0.0078	0.0184	0.0208	0.0229	0.0224	0.0215	0.0186
	38.6°	0.3180	0.3102	0.2981	0.2816	0.0074	0.0208	0.0180	0.0185	0.0199	0.0191	0.0144
	64.5°	0.3190	0.3134	0.3082	0.2984	0.0064	0.0279	0.0212	0.0178	0.0160	0.0183	0.0118
	90.0°	0.3182	0.3139	0.3074	0.2979	0.0076	0.0354	0.0294	0.0264	0.0252	0.0242	0.0211
	115.5°	0.3164	0.3206	0.3220	0.3131	0.0158	0.0511	0.0449	0.0432	0.0437	0.0429	0.0373
	141.4°	0.3145	0.3198	0.3224	0.3198	0.0171	0.0624	0.0534	0.0593	0.0612	0.0588	0.0514
	167.1°	0.3161	0.3210	0.3281	0.3277	0.0240	0.0738	0.0718	0.0716	0.0732	0.0723	0.0630
$\alpha = 17.5^\circ$	$\beta =$ 12.9°	0.3110	0.3034	0.2924	0.2734	0.0070	0.0178	0.0183	0.0202	0.0195	0.0188	0.0172
	38.6°	0.3127	0.3045	0.2930	0.2758	0.0068	0.0184	0.0163	0.0158	0.0150	0.0132	0.0120
	64.5°	0.3140	0.3078	0.3029	0.2867	0.0052	0.0245	0.0189	0.0152	0.0134	0.0120	0.0104
	90.0°	0.3114	0.3092	0.3031	0.2934	0.0075	0.0351	0.0286	0.0254	0.0243	0.0238	0.0209
	115.5°	0.3114	0.3162	0.3178	0.3095	0.0134	0.0540	0.0481	0.0465	0.0475	0.0468	0.0402
	141.4°	0.3102	0.3155	0.3194	0.3142	0.0203	0.0692	0.0622	0.0675	0.0691	0.0676	0.0578
	167.1°	0.3109	0.3172	0.3250	0.3262	0.0330	0.0857	0.0844	0.0835	0.0847	0.0830	0.0721

Table 12

(p/p_0) FOR MODELS 24 AND 25

SPHERICALLY-BLUNTED DOUBLE CONE



ϕ	3
$2r/D$	0·098
d/D	0·100
θ°	10·35
θ_c°	6·94
R/D	

$C_{D_{P(\alpha=0^\circ)}} = 0.0614$

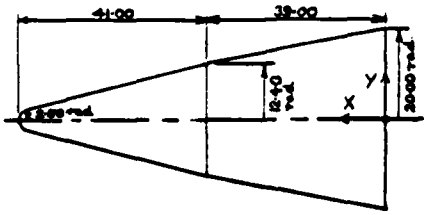
Model No.	25	24	25	24	25	24	25	24	25	24	25	24	25	24
X	118·69	118·32	112·84	101·89	79·99	74·51	66·30	63·54	60·83	57·53	49·31	32·87	20·55	8·22
Y	1·90	2·00	3·00	5·00	9·00	10·00	11·50	12·00	12·50	13·00	14·00	16·00	17·50	19·00
$\alpha = 0^\circ$	0·0392	0·0432	0·0393	0·0401	0·0415	0·0414	0·0419	0·0418	0·0408	0·0333	0·0334	0·0333	0·0339	0·0340

	ϕ	2·7°	2·7°	23·0°	23·0°	10·1°	9·1°	9·3°	14·6°	22·0°	10·2°	3·7°	15·5°	23·0°	22·0°
$\alpha =$	2·5°	0·0485	0·0341	0·0352	0·0347	0·0372	0·0340	0·0380	0·0397	0·0378	0·0309	0·0301	0·0302	0·0301	0·0304
	5°	0·0433	0·0324	0·0320	0·0329	0·0341	0·0339	0·0345	0·0340	0·0342	0·0282	0·0276	0·0275	0·0276	0·0282
	7·5°	0·0382	0·0282	0·0291	0·0297	0·0318	0·0310	0·0313	0·0309	0·0309	0·0259	0·0256	0·0254	0·0252	0·0262
	10°	0·0335	0·0241	0·0265	0·0270	0·0296	0·0286		0·0283	0·0280	0·0243	0·0242	0·0237	0·0231	0·0242
	12·5°	0·0284	0·0203	0·0242	0·0240	0·0270	0·0245		0·0243	0·0258	0·0228		0·0218	0·0210	0·0219
	15°	0·0244	0·0175	0·0225	0·0203	0·0248	0·0232	0·0242	0·0234	0·0239	0·0197	0·0207	0·0197	0·0167	
	17·5°	0·0212	0·0153	0·0201	0·0157	0·0216	0·0189	0·0222	0·0177	0·0190	0·0176	0·0178	0·0147	0·0119	0·0177
	ϕ	48·7°	48·8°	28·4°	28·4°	41·3°	42·3°	42·3°	34·8°	29·4°	41·2°	47·7°	35·9°	28·4°	29·5°
$\alpha =$	2·5°	0·0502	0·0385	0·0350	0·0343	0·0381	0·0368	0·0382	0·0382	0·0377	0·0314	0·0315		0·0307	0·0313
	5°	0·0465	0·0342	0·0328	0·0328	0·0354	0·0344	0·0350	0·0348	0·0340	0·0287	0·0286	0·0299	0·0282	0·0287
	7·5°	0·0433	0·0332	0·0295	0·0296	0·0315	0·0304	0·0313	0·0310	0·0300	0·0258	0·0253	0·0251	0·0257	0·0261
	10°	0·0399	0·0298	0·0267	0·0265	0·0295	0·0264	0·0276	0·0275	0·0268	0·0222	0·0219	0·0224	0·0237	0·0260
	12·5°	0·0362	0·0271	0·0241	0·0234	0·0275	0·0234	0·0237	0·0239	0·0248	0·0185	0·0176	0·0197	0·0215	0·0216
	15°	0·0327	0·0245	0·0225	0·0203	0·0272	0·0176	0·0235	0·0257	0·0216	0·0141	0·0126	0·0164	0·0169	0·0176
	17·5°	0·0296	0·0224	0·0202	0·0169	0·0252	0·0154	0·0247	0·0264	0·0166	0·0129	0·0117	0·0125	0·0126	0·0135
	ϕ	54·2°	54·1°	74·4°	74·5°	61·6°	60·5°	60·6°	68·0°	73·4°	61·6°	55·1°	62·0°	74·4°	73·4°
$\alpha =$	2·5°	0·0505	0·0372	0·0324	0·0381	0·0394	0·0384	0·0395	0·0403	0·0406	0·0315	0·0318	0·0297	0·0319	0·0333
	5°	0·0470	0·0353	0·0345	0·0354	0·0367	0·0344	0·0362	0·0371	0·0380	0·0291	0·0290	0·0274	0·0297	0·0309
	7·5°	0·0434	0·0325	0·0340	0·0324	0·0324	0·0327	0·0321	0·0334	0·0345	0·0259	0·0256	0·0244	0·0243	0·0272
	10°	0·0393	0·0299	0·0321	0·0290	0·0280	0·0279	0·0282	0·0286	0·0304	0·0220	0·0218	0·0210	0·0227	0·0252
	12·5°		0·0273	0·0301	0·0256	0·0223	0·0224	0·0243	0·0233	0·0257	0·0174	0·0162	0·0167	0·0195	0·0195
	15°	0·0317	0·0250	0·0279	0·0225	0·0185	0·0185	0·0172	0·0198	0·0227	0·0140	0·0119	0·0145	0·0174	0·0176
	17·5°	0·0292	0·0229	0·0241	0·0204	0·0155	0·0162	0·0149	0·0174	0·0208	0·0119	0·0102	0·0130	0·0163	0·0163
	ϕ	100·1°	100·2°	79·9°	79·9°	92·7°	93·8°	93·7°	84·2°	80·9°	92·7°	99·2°	87·3°	79·9°	80·9°
$\alpha =$	2·5°	0·0568	0·0402	0·0394	0·0393	0·0411	0·0408	0·0425	0·0431	0·0419	0·0344	0·0341	0·0328	0·0336	0·0337
	5°	0·0528	0·0451	0·0370	0·0379	0·0408	0·0404	0·0424	0·0418	0·0397	0·0341	0·0341	0·0311	0·0318	0·0317
	7·5°	0·0585	0·0459	0·0355	0·0354	0·0391	0·0388	0·0417	0·0398	0·0371	0·0332	0·0332	0·0290	0·0289	0·0284
	10°	0·0610	0·0448	0·0334	0·0329	0·0384	0·0361	0·0401	0·0378	0·0340	0·0320	0·0324	0·0264	0·0256	0·0251
	12·5°	0·0638	0·0440	0·0305	0·0305	0·0376	0·0339	0·0386	0·0355		0·0310		0·0243	0·0220	0·0219
	15°	0·0655	0·0488	0·0291	0·0275	0·0348	0·0308	0·0378	0·0342	0·0286	0·0303	0·0319	0·0231	0·0200	0·0199
	17·5°	0·0665	0·0493	0·0298	0·0263	0·0371	0·0332	0·0375	0·0330	0·0265	0·0300	0·0321	0·0224	0·0189	0·0187
	ϕ	105·6°	105·5°	125·9°	125·9°	113·0°	112·0°	112·0°	118·5°	124·8°	113·0°	106·6°	118·4°	125·9°	124·8°
$\alpha =$	2·5°	0·0540	0·0428	0·0417	0·0425	0·0434	0·0433	0·0444	0·0443	0·0439	0·0348	0·0338	0·0364	0·0342	0·0372
	5°	0·0579	0·0494	0·0447	0·0457	0·0450	0·0453	0·0461	0·0465	0·0469	0·0365	0·0344	0·0383	0·0386	0·0392
	7·5°	0·0601	0·0454	0·0480	0·0487	0·0467	0·0473	0·0466	0·0483	0·0501	0·0362	0·0353	0·0400	0·0411	0·0414
	10°	0·0609	0·0470	0·0515	0·0513	0·0484	0·0487	0·0484	0·0501	0·0538	0·0389	0·0358	0·0420	0·0437	0·0440
	12·5°	0·0625	0·0482		0·0544	0·0510	0·0525	0·0506	0·0522	0·0582	0·0403	0·0346	0·0442		0·0435
	15°	0·0634	0·0508	0·0617	0·0595	0·0534	0·0554	0·0530	0·0550	0·0626	0·0419	0·0376	0·0469	0·0506	0·0511
	17·5°	0·0640	0·0523	0·0681	0·0648	0·0561	0·0588	0·0556	0·0568	0·0668	0·0439	0·0391	0·0500	0·0547	0·0561
	ϕ	151·6°	151·6°	131·3°	131·2°	144·2°	145·2°	145·1°	137·7°	132·3°	144·1°	150·6°	138·8°	131·3°	132·3°
$\alpha =$	2·5°	0·0612	0·0448	0·0427	0·0439	0·0451	0·0455	0·0453	0·0459	0·0387	0·0352	0·0381	0·0347	0·0364	0·0364
	5°	0·0670	0·0523	0·0444	0·0476	0·0501	0·0500	0·0505	0·0506	0·0490	0·0389	0·0428	0·0395	0·0389	0·0390
	7·5°	0·0729	0·0581	0·0484	0·0512	0·0553	0·0543	0·0548	0·0559	0·0523	0·0435	0·0487	0·0428	0·0420	0·0419
	10°	0·0843	0·0644	0·0530	0·0544	0·0600	0·0607	0·0640	0·0616	0·0531	0·0500	0·0549	0·0469	0·0448	0·0451
	12·5°	0·0881	0·0759	0·0574	0·0624		0·0671	0·0715	0·0671	0·0623	0·0562	0·0607	0·0503	0·0485	0·0491
	15°	0·1089	0·0853	0·0614	0·0678	0·0754	0·0724	0·0780	0·0734	0·0695	0·0629	0·0681	0·0549	0·0525	0·0532
	17·5°	0·1201	0·0921	0·0685	0·0727	0·0844	0·0808	0·0878	0·0820	0·0745	0·0714	0·0759	0·0604	0·0571	0·0583
	ϕ	157·0°	157·0°	132·3°	132·3°	164·4°	163·4°	163·4°	170·8°	136·3°	164·5°	158·0°	169·8°	132·3°	136·2°
$\alpha =$	2·5°	0·0611	0·0477	0·0442	0·0456	0·0458	0·0486	0·0476	0·0447	0·0462	0·0368	0·0347	0·0382	0·0388	0·0391
	5°	0·0684	0·0513	0·0498	0·0520	0·0520	0·0547	0·0534	0·0531	0·0528	0·0414	0·0413	0·0434	0·044	0·0440
	7·5°	0·0759	0·0580	0·0542	0·0538	0·0603	0·0610	0·0601	0·0605	0·0607	0·0433	0·0469	0·0481	0·0503	0·0500
	10°	0·0881	0·0644	0·0647	0·0691	0·0692	0·0688	0·0695	0·0683	0·0634	0·0538	0·0532	0·0544	0·0574	0·0574
	12·5°	0·0944	0·0760	0·0742	0·0727	0·0795	0·0784	0·0777	0·0787	0·0796	0·0612	0·0603	0·0631	0·0660	0·0659
	15°	0·1078	0·0848	0·0855	0·0873	0·0838	0·0889	0·0870	0·0884	0·0899	0·0692	0·0686	0·0705	0·0749	0·0745
	17·5°	0·1200	0·0938	0·0994	0·0995	0·0996	0·0987	0·0984	0·0993	0·1019	0·0782	0·0796	0·0803	0·0850	0·0848

Table 13

(p/p_0) FOR MODELS 26 AND 27

SPHERICALLY-BLUNTED DOUBLE CONE



$\bar{r}$	$\bar{z}$
27/D	0·121
d/D	0·185
θ_1	14·36
θ_2	11·01
R/D	

$C_{D_{P(\alpha=0^\circ)}} = 0{\cdot}1232$

Model No.	26	27	26	27	26	27	26	27	26	27	26	27	26	27
X	79·80	79·60	75·77	67·96	52·33	48·43	42·57	40·61	38·55	35·98	30·84	20·56	12·85	5·14
Y	1·00	2·25	3·00	5·00	9·00	10·00	11·50	12·00	12·50	13·00	14·00	14·00	17·50	19·00

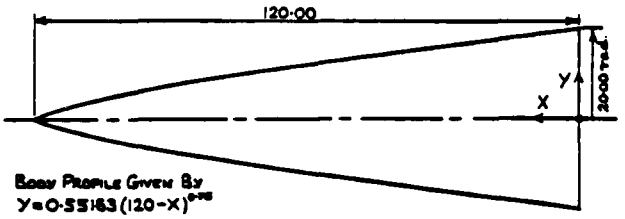
$\alpha = 0^\circ$	0·3014	0·0734	0·0503	0·0504	0·0524	0·0522	0·0530	0·0519	0·0486	0·0443	0·0431	0·0420	0·0429	0·0442

	Ø	11·1°	9·2°	14·6°	23·0°	1·7°	3·7°	21·0°	15·6°	11·1°	16·6°	8·2°	2·7°	24·0°	23·0°
$\alpha =$	2·5°	0·2980	0·0655	0·0444	0·0445	0·0446	0·0461	0·0470	0·0465	0·0433	0·0391	0·0378	0·0370	0·0375	0·0391
	5°	0·2908	0·0574	0·0409	0·0400	0·0415	0·0411	0·0428	0·0417	0·0382	0·0349	0·0348	0·0335	0·0343	0·0354
	7·5°	0·2841	0·0513	0·0383	0·0345	0·0347	0·0364	0·0382	0·0378	0·0350	0·0317	0·0314	0·0305	0·0308	0·0318
	10°	0·2769	0·0455	0·0313	0·0332	0·0341	0·0341	0·0344	0·0347	0·0320	0·0289	0·0287	0·0279	0·0278	0·0285
	12·5°	0·2692	0·0404	0·0283	0·0299	0·0318	0·0318	0·0308	0·0317	0·0295	0·0261	0·0245	0·0261	0·0250	0·0254
	15°	0·2624	0·0352	0·0253	0·0274	0·0302	0·0299	0·0279	0·0293	0·0272	0·0238	0·0244	0·0244	0·0227	0·0224
	17·5°	0·2483	0·0311	0·0227	0·0248	0·0281	0·0281	0·0253	0·0271	0·0251	0·0217	0·0226	0·0223	0·0203	0·0205
	Ø	40·3°	42·3°	34·9°	28·4°	49·7°	47·7°	30·4°	35·9°	40·3°	34·9°	43·3°	48·7°	27·4°	28·4°
$\alpha =$	2·5°	0·2985	0·0490	0·0456	0·0455	0·0482	0·0478	0·0473	0·0443	0·0449	0·0402	0·0394	0·0389		0·0398
	5°	0·2918	0·0432	0·0413	0·0410	0·0436	0·0433	0·0432	0·0425	0·0412	0·0366	0·0358	0·0355		0·0359
	7·5°	0·2850	0·0376	0·0373	0·0371	0·0391	0·0391	0·0384		0·0368	0·0326	0·0316	0·0316		0·0324
	10°	0·2781	0·0315	0·0344	0·0334	0·0349	0·0344	0·0342	0·0331	0·0327	0·0287	0·0279	0·0278		0·0289
	12·5°	0·2691	0·0469	0·0309	0·0302	0·0284	0·0288	0·0300	0·0281	0·0277	0·0249	0·0237	0·0235		0·0258
	15°	0·2617	0·0431	0·0280	0·0274	0·0259	0·0231	0·0242	0·0230	0·0228	0·0212	0·0191	0·0188		0·0252
	17·5°	0·2520	0·0389	0·0251	0·0244	0·0183	0·0174	0·0221	0·0167	0·0167	0·0169	0·0135	0·0139		0·0213
	Ø	62·5°	60·6°	66·0°	74·4°	53·2°	55·1°	72·4°	67·0°	62·5°	68·0°	59·6°	54·2°	75·4°	74·4°
$\alpha =$	2·5°		0·0687	0·0477	0·0490	0·0485	0·0483		0·0506		0·0410	0·0408	0·0390	0·0412	0·0438
	5°		0·0656	0·0456	0·0469	0·0446	0·0445		0·0474		0·0385	0·0383	0·0358	0·0396	0·0415
	7·5°			0·0433	0·0444	0·0408	0·0411		0·0439		0·0363	0·0345	0·0320	0·0380	0·0384
	10°		0·0543	0·0411	0·0419	0·0362	0·0363		0·0399		0·0331	0·0306	0·0280	0·0342	0·0353
	12·5°		0·0531	0·0392	0·0396	0·0311	0·0311		0·0351		0·0296	0·0265	0·0233	0·0309	0·0319
	15°		0·0501	0·0374	0·0332	0·0258	0·0259		0·0308		0·0263	0·0224	0·0189	0·0282	0·0291
	17·5°		0·0460	0·0350	0·0348	0·0201	0·0212		0·0274		0·0239	0·0190	0·0148	0·0258	0·0271
	Ø	31·7°	93·7°	88·6°	79·9°	101·1°	99·2°	81·9°	87·3°	91·7°	86·3°	94·7°	100·1°	78·9°	79·9°
$\alpha =$	2·5°	0·3010	0·0753	0·0509	0·0487	0·0530	0·0540	0·0513	0·0507	0·0505	0·0442	0·0429	0·0432	0·0423	0·0445
	5°	0·3003	0·0740	0·0501	0·0474	0·0533	0·0541	0·0498	0·0499	0·0502	0·0436	0·0433	0·0441	0·0408	0·0423
	7·5°	0·2933	0·0765	0·0485	0·0458	0·0510	0·0543	0·0483	0·0491	0·0469	0·0419	0·0427	0·0444	0·0384	0·0399
	10°	0·2957	0·0769	0·0485	0·0436	0·0543	0·0539	0·0467	0·0470	0·0474	0·0403	0·0421	0·0445	0·0355	0·0371
	12·5°	0·2923	[illegible]	0·0485	0·0412	0·0546	0·0533	0·0431	0·0454	0·0446	0·0384	0·0416	0·0448	0·0323	0·0340
	15°	0·2876	0·0838	0·0493	0·0389	0·0551	0·0529	0·0408	0·0439	0·0458	0·0370	0·0408	0·0450	0·0306	0·0314
	17·5°	0·2842	0·0754	0·0488	0·0365	0·0557	0·0528	0·0386	0·0428	0·0449	0·0357	0·0401	0·0435	0·0284	0·0292
	Ø	114·0°	112·0°	117·4°	125·9°	104·4°	106·6°	123·9°	118·4°	114·0°	119·4°	111·0°	105·6°	124·9°	125·9°
$\alpha =$	2·5°	0·3046	0·0749		0·0550	0·0545	0·0539	0·0598	0·0561	0·0520	0·0471	0·0450	0·0432	0·0461	0·0480
	5°	0·3057	0·0777		0·0592	0·0559	0·0558	0·0619	0·0592	0·0539	0·0500	0·0465	0·0443	0·0491	0·0516
	7·5°	0·3067	0·0802		0·0643	0·0572	0·0571	0·0643	0·0624	0·0560	0·0529	0·0484	0·0447	0·0534	0·0565
	10°	0·3056	0·0833		0·0693	0·0580	0·0584	0·0708	0·0660	0·0581		0·0500	0·0449	0·0567	0·0607
	12·5°	0·3038	0·0858		0·0746	0·0598	0·0601	0·0755	0·0694	0·0604	0·0591	0·0519	0·0456	0·0614	0·0653
	15°	0·2990	0·0879		0·0794	0·0605	0·0618	0·0819	0·0717	0·0628	0·0625	0·0537	0·0462	0·0666	0·0689
	17·5°	0·2955	0·0899		0·0840	0·0619	0·0633	0·0858	0·0746	0·0658	0·0665	0·0563	0·0480	0·0713	0·0738
	Ø	143·2°	145·1°	139·7°	131·3°	152·6°	150·6°	133·3°	138·7°	143·2°	137·7°	144·1°	151·6°	130·3°	131·3°
$\alpha =$	2·5°	0·3053	0·0792	0·0553	0·0550		0·0598	0·0578	0·0580	0·0540	0·0487	0·0453	0·0476	0·0463	0·0478
	5°	0·3082	0·0865	0·0602	0·0588		0·0662	0·0630	0·0638	0·0597	0·0532	0·0525	0·0538	0·0499	0·0519
	7·5°	0·3115	0·0934	0·0643	0·0633		0·0741	0·0685	0·0703	0·0655	0·0583	0·0585	0·0603	0·0539	0·0560
	10°	0·3108	0·1009	0·0734	0·0690		0·0824	0·0834	0·0752	0·0718	0·0637	0·0644	0·0666	0·0583	0·0604
	12·5°	0·3149	0·1085	0·0807	0·0763		0·0918	0·0799	0·0892	0·0791	0·0695	0·0714	0·0744	0·0630	0·0653
	15°	0·3164	0·1156	0·0884	0·0822		0·1008	0·0854	0·0909	0·0842	0·0753	0·0783	0·0825	0·0690	0·0709
	17·5°	0·3158	0·1248	0·0970	0·0882		0·1105	0·0918	0·0996	0·0936	0·0818	0·0864	0·0916	0·0744	0·0759
	Ø	165·4°	163·4°	168·9°	177·3°	154·0°	158·0°	175·3°	169·9°	165·4°	170·9°	162·4°	157·0°	178·3°	177·3°
$\alpha =$	2·5°	0·3081	0·0807	0·0560	0·0548	0·0588	0·0577	0·0605	0·0585	0·0555	0·0505		0·0461	0·0495	0·0507
	5°	0·3135	0·0981	0·0624	0·0649	0·0644	0·0656	0·0630	0·0668	0·0631	0·0574		0·0515	0·0564	0·0573
	7·5°	0·3175	0·0963	0·0706	0·0749	0·0753	0·0743	0·0789	0·0760	0·0716	0·0654		0·0606	0·0645	0·0652
	10°	0·3166	0·1040	0·0798	0·0854	0·0844	0·0834	0·0895	0·0858	0·0806	0·0738		0·0679	0·0725	0·0739
	12·5°	0·3199	0·1124	0·0906	0·0962	0·0944	0·0933	0·1008	0·0965	0·0900	0·0837		0·0759	0·0818	0·0824
	15°	0·3229	0·1228	0·1021	0·1077	0·1044	0·1035	0·1123	0·1075	0·0998	0·0934		0·0853	0·0917	0·0933
	17·5°	0·3234	0·1356	0·1140	0·1214	0·1153	0·1149	0·1248	0·1194	0·1112	0·1041		0·0956	0·1023	0·1044

Table 14

(p/p_0) FOR MODELS 28 AND 29

3/4 POWER LAW



BODY PROFILE GIVEN BY
$Y = 0.55163(120-X)^{0.75}$

f	3
2r/D	
d/D	
θ°	
θ°	
R/D	

$C_{D_{P(\alpha=0^\circ)}} = 0.0612$

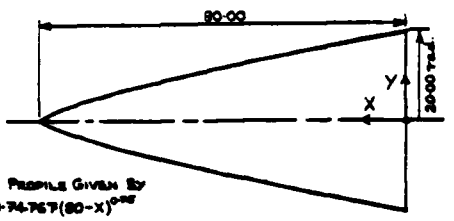
MODEL No.	29	28	29	28	29	28	29	28	29	28	29	28	29	28
X	117·79	114·43	110·44	101·10	78·62	72·38	62·62	59·27	55·88	52·43	45·42	30·88	19·57	7·93
Y	1·00	2·00	3·00	5·00	9·00	10·00	11·50	12·00	12·50	13·00	14·00	16·00	17·50	19·00
$\alpha = 0^\circ$	0·0658	0·0540	0·0508	0·0441	0·0403	0·0380	0·0366	0·0372	0·0368	0·0363	0·0359	0·0349	0·0359	0·0351

	Ø	2·7°	9·1°	23·0°	16·6°	15·5°	15·5°	3·8°	10·2°	16·6°	3·8°	9·1°	22·0°	23·0°	23·0°
α =	2·5°	0·0581	0·0472		0·0383	0·0343	0·0340	0·0332	0·0332		0·0328	0·0329	0·0318		0·0314
	5°	0·0534	0·0431		0·0353	0·0327	0·0318	0·0304	0·0312		0·0307	0·0302	0·0290		0·0287
	7·5°	0·0477	0·0386		0·0314	0·0300	0·0289	0·0280	0·0284		0·0282	0·0280	0·0314		0·0276
	10°	0·0432	0·0351		0·0280	0·0278	0·0266	0·0261	0·0263		0·0263	0·0260	0·0246		0·0244
	12·5°	0·0389	0·0317		0·0252	0·0255	0·0247	0·0244	0·0242		0·0245	0·0243	0·0223		0·0221
	15°	0·0352	0·0290		0·0229	0·0238	0·0231	0·0227	0·0217		0·0228	0·0225	0·0187		0·0167
	17·5°	0·0317	0·0259		0·0183	0·0212	0·0195	0·0211	0·0184		0·0216	0·0205	0·0110		0·0118
	Ø	48·8°	42·3°	28·4°	34·8°	35·9°	36·9°	47·7°	41·3°	34·8°	47·7°	42·3°	29·5°	28·4°	28·4°
α =	2·5°	0·0601	0·0487		0·0399	0·0361	0·0348	0·0341	0·0349	0·0339	0·0339	0·0333	0·0316		0·0313
	5°	0·0541	0·0437		0·0340	0·0329	0·0315	0·0311	0·0315	0·0306	0·0308	0·0308	0·0290		0·0288
	7·5°	0·0515	0·0411		0·0320	0·0292	0·0281	0·0276	0·0281	0·0272	0·0273	0·0267	0·0263		0·0265
	10°	0·0472	0·0369		0·0281	0·0256	0·0247	0·0239	0·0245	0·0241	0·0235	0·0231	0·0238		0·0243
	12·5°	0·0422	0·0321		0·0241	0·0219	0·0210	0·0193	0·0207	0·0210	0·0190	0·0190	0·0216		0·0219
	15°	0·0372	0·0277		0·0212	0·0180	0·0171	0·0141	0·0166	0·0176	0·0141	0·0151	0·0180		0·0225
	17·5°	0·0324	0·0234		0·0182	0·0143	0·0136	0·0131	0·0138		0·0131	0·0134	0·0140		0·0141
	Ø	54·1°	60·5°	74·5°	68·0°	67·0°	67·0°	55·2°	61·6°	68·0°	55·2°	60·5°	73·4°	74·5°	74·5°
α =	2·5°	0·0403	0·0424	0·0484	0·0419		0·0368	0·0343	0·0357		0·0349	0·0345	0·0339	0·0344	0·0337
	5°	0·0358	0·0344	0·0473	0·0392		0·0344	0·0313	0·0329		0·0318	0·0320	0·0318	0·0322	0·0316
	7·5°	0·0328	0·0429	0·0447	0·0359		0·0311	0·0278	0·0291		0·0280	0·0290	0·0284	0·0293	0·0283
	10°	0·0287	0·0394	0·0420	0·0323		0·0280	0·0237	0·0246		0·0237	0·0250	0·0245	0·0254	0·0244
	12·5°	0·0244	0·0352	0·0390	0·0288		0·0223	0·0184	0·0191		0·0181	0·0201	0·0202	0·0218	0·0207
	15°	0·0201	0·0313	0·0357	0·0246		0·0183	0·0128	0·0152		0·0132	0·0148	0·0177	0·0191	0·0184
	17·5°	0·0356	0·0270	0·0328	0·0219		0·0158		0·0129		0·0109	0·0129	0·0161	0·0174	0·0172
	Ø	100·2°	93·8°	79·8°	86·3°	87·3°	87·3°	99·1°	92·7°	86·3°	99·1°	93·8°	80·9°	79·8°	79·8°
α =	2·5°	0·0620	0·0537	0·0490	0·0440	0·0395	0·0384	0·0359	0·0380	0·0341	0·0376	0·0356	0·0338	0·0347	0·0350
	5°	0·0577	0·0543	0·0441	0·0426	0·0384	0·0382	0·0356	0·0365	0·0343	0·0367	0·0344	0·0319	0·0329	0·0327
	7·5°	0·0705	0·0547	0·0444	0·0408	0·0346	0·0360	0·0342	0·0342	0·0319	0·0358	0·0331	0·0292	0·0306	0·0291
	10°	0·0709	0·0548	0·0424	0·0385	0·0347	0·0337	0·0337	0·0322	0·0293	0·0347	0·0314	0·0261	0·0274	0·0254
	12·5°	0·0727	0·0543	0·0399	0·0360	0·0324	0·0315	0·0331	0·0304	0·0271	0·0339	0·0302	0·0233	0·0243	0·0220
	15°	0·0732	0·0539	0·0375	0·0338	0·0308	0·0299	0·0330	0·0295	0·0256	0·0339	0·0296	0·0217	0·0225	0·0199
	17·5°		0·0528		0·0325	0·0297	0·0291	0·0334	0·0290	0·0247	0·0340	0·0295	0·0206		0·0186
	Ø	105·5°	112·0°	125·9°	119·5°	118·4°	118·4°	106·4°	113·0°	119·5°	106·4°	112·0°	124·8°	125·9°	125·9°
α =	2·5°	0·0646	0·0562	0·0538	0·0469		0·0394		0·0391	0·0389	0·0378		0·0380	0·0380	0·0370
	5°	0·0684	0·0579	0·0573	0·0492		0·0412		0·0414	0·0416	0·0386		0·0396	0·0401	0·0388
	7·5°	0·0718	0·0607	0·0620	0·0519		0·0440		0·0423	0·0435	0·0387		0·0416	0·0426	0·0411
	10°	0·0749	0·0634	0·0673	0·0546		0·0459		0·0435	0·0457	0·0389		0·0437	0·0454	0·0438
	12·5°	0·0769	0·0647	0·0727	0·0576		0·0487		0·0449	0·0480	0·0395		0·0465	0·0486	0·0473
	15°	0·0796	0·0694	0·0777	0·0609		0·0516		0·0468	0·0507	0·0404		0·0501	0·0521	0·0511
	17·5°	0·0817	0·0724	0·0838	0·0652		0·0550		0·0492	0·0538	0·0417		0·0541	0·0563	0·0559
	Ø	151·4°	145·2°	131·3°	137·7°	138·6°	138·6°	150·5°	144·1°	137·7°	150·5°	145·2°	132·36	131·3°	131·3°
α =	2·5°		0·0597	0·0547	0·0483	0·0443	0·0420	0·0404	0·0411	0·0404	0·0399	0·0386	0·0389	0·0392	0·0379
	5°		0·0657	0·0585	0·0527	0·0482	0·0462	0·0432	0·0450	0·0444	0·0441	0·0434	0·0412	0·0419	0·0403
	7·5°		0·0742	0·0623	0·0571	0·0523	0·0510	0·0469	0·0498	0·0485	0·0495	0·0467	0·0446	0·0449	0·0432
	10°		0·0832	0·0682	0·0624	0·0575	0·0561	0·0574	0·0544	0·0531	0·0551	0·0517	0·0485	0·0485	0·0446
	12·5°		0·0928	0·0742	0·0685	0·0629	0·0618	0·0594	0·0593	0·0592	0·0624	0·0537	0·0531	0·0526	0·0509
	15°		0·1031	0·0806	0·0733	0·0688	0·0679	0·0645	0·0651	0·0640	0·0697	0·0641	0·0580	0·0571	0·0552
	17·5°		0·1141	0·0879	0·0804	0·0754	0·0748	0·0746	0·0725	0·0695	0·0779		0·0635	0·0622	0·0604
	Ø	157·0°	162·4°	177·3°	170·9°	169·8°	169·8°	158·0°	164·5°	170·9°	158·0°	163·4°	174·3°	177·3°	177·3°
α =	2·5°		0·0610	0·0579	0·0497	0·0450	0·0421		0·0405	0·0403	0·0395		0·0386	0·0400	0·0397
	5°		0·0676	0·0639	0·0542	0·0515	0·0478		0·0459	0·0449	0·0440		0·0436	0·0445	0·0444
	7·5°		0·0774	0·0722	0·0638	0·0584	0·0551		0·0524	0·0513	0·0498		0·0499	0·0511	0·0508
	10°		0·0884	0·0829	0·0723	0·0658	0·0629		0·0595	0·0587	0·0568		0·0572	0·0584	0·0580
	12·5°		0·1012	0·0951	0·0812	0·0751	0·0719		0·0681	0·0671	0·0650		0·0656	0·0667	0·0669
	15°		0·1142	0·1070	0·0912	0·0861	0·0817		0·0771	0·0759	0·0733		0·0742	0·0756	0·0758
	17·5°		0·1290	0·1212	0·1037		0·0926		0·0877	0·0862	0·0830		0·0842	0·0861	0·0879

Table 15

(p/p_0) FOR MODELS 30 AND 31

3/4 POWER LAW



f	2
$2r_T/D$	
d/D	
θ°	
ϕ°	
R/D	

$C_{D_{P(4-\sigma)}} = 0.1226$

MODEL No.	30	31	30	31	30	31	30	31	30	31	30	31	30	31
X	78·57	75·66	73·62	67·40	52·41	48·25	41·75	39·52	37·25	34·96	30·28	20·59	13·05	5·29
Y	1·00	2·25	3·00	5·00	9·00	10·00	11·50	12·00	12·50	13·00	14·00	16·00	17·50	19·00

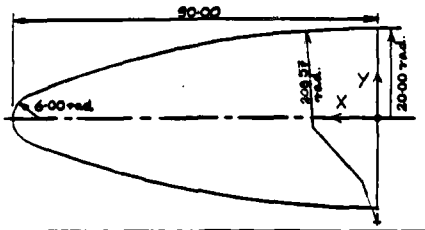
$\alpha = 0^\circ$	0·1172	0·0786	0·0717	0·0592	0·0510	0·0498	0·0477	0·0469	0·0462	0·0467	0·0454	0·0442	0·0434	0·0431

Ø	15·5°	10·2°	10·2°	22·0°	2·7°	2·7°	16·6°	16·6°	15·5°	15·5°	3·8°	3·8°	23·0°	22·0°
α = 2·5°	0·1057	0·0697	0·0635	0·0524	0·0454	0·0442	0·0417	0·0412	0·0399	0·0415	0·0398	0·0393	0·0389	0·0381
5°	0·0921	0·0621	0·0561	0·0465	0·0403	0·0393	0·0374	0·0372	0·0356	0·0372	0·0358	0·0351	0·0347	0·0344
7·5°	0·0813	0·0548	0·0496	0·0408	0·0357	0·0350	0·0334	0·0332	0·0320	0·0332	0·0326	0·0315	0·0310	0·0310
10°	0·0724	0·0486	0·0440	0·0367	0·0320	0·0317	0·0301	0·0300	0·0290	0·0299	0·0294	0·0287	0·0278	0·0280
12·5°	0·0650	0·0431	0·0390	0·0323	0·0284	0·0284	0·0271	0·0273	0·0262	0·0270	0·0267	0·0265	0·0249	0·0252
15°	0·0585	0·0382	0·0348	0·0287	0·0273	0·0263	0·0247	0·0249	0·0242	0·0247	0·0248	0·0247	0·0224	0·0229
17·5°	0·0520	0·0340	0·0311	0·0254	0·0253	0·0245	0·0225	0·0229	0·0222	0·0226	0·0230	0·0231	0·0199	0·0235
Ø	35·9°	41·3°	41·3°	29·5°	48·8°	48·8°	34·8°	34·8°	35·9°	35·9°	47·7°	47·7°	28·4°	29·5°
α = 2·5°	0·1068	0·0720	0·0651	0·0530	0·0471	0·0460	0·0425	0·0421	0·0407	0·0424	0·0418	0·0416	0·0395	0·0379
5°	0·0964	0·0656	0·0590	0·0480	0·0439	0·0422	0·0380	0·0380	0·0368	0·0383	0·0388	0·0383	0·0360	0·0344
7·5°	0·0863	0·0588	0·0530	0·0421	0·0398	0·0378	0·0342	0·0339	0·0329	0·0342	0·0346	0·0342	0·0325	0·0309
10°	0·0776	0·0533	0·0475	0·0372	0·0353	0·0334	0·0305	0·0301	0·0291	0·0303	0·0304	0·0301	0·0293	0·0279
12·5°	0·0693	0·0472	0·0423	0·0327	0·0307	0·0288	0·0268	0·0261	0·0253	0·0264	0·0261	0·0257	0·0262	0·0247
15°	0·0621	0·0421	0·0392	0·0290	0·0241	0·0243	0·0234	0·0224	0·0217	0·0223	0·0215	0·0209	0·0235	0·0220
17·5°	0·0549	0·0371	0·0325	0·0253	0·0211	0·0191	0·0198	0·0180	0·0170	0·0185	0·0161	0·0154	0·0208	0·0198
Ø	67·0°	61·6°	61·6°	73·4°	54·1°	54·1°	68·0°	68·0°	67·0°	67·0°	55·2°	55·2°	74·5°	73·4°
α = 2·5°	0·1127	0·0732	0·0620	0·0512	0·0472	0·0459	0·0445		0·0429	0·0442	0·0421	0·0404	0·0418	0·0427
5°	0·1044	0·0682	0·0628	0·0538	0·0439	0·0424	0·0421		0·0407	0·0414	0·0395	0·0373	0·0395	0·0408
7·5°	0·0994	0·0631	0·0584	0·0510	0·0399	0·0390	0·0388	0·0384	0·0372	0·0384	0·0354	0·0336	0·0367	0·0381
10°	0·0924	0·0583	0·0542	0·0478	0·0353	0·0348	0·0354	0·0344	0·0337	0·0348	0·0315	0·0294	0·0335	0·0340
12·5°	0·0858	0·0534	0·0497	0·0450	0·0305	0·0297	0·0317	0·0307	0·0299	0·0310	0·0292	0·0221	0·0303	0·0297
15°	0·0792	0·0488	0·0449	0·0416	0·0256	0·0251	0·0283	0·0270	0·0262	0·0274	0·0226	0·0202	0·0277	0·0267
17·5°	0·0730	0·0440	0·0405	0·0384	0·0208	0·0208	0·0254		0·0228	0·0243	0·0186	0·0160	0·0254	0·0244
Ø	87·3°	92·7°	92·7°	80·5°	100·2°	100·2°	86·3°	86·3°	87·3°	87·3°	99·1°	99·1°	79·8°	80·9°
α = 2·5°	0·1170	0·0798	0·0717	0·0586	0·0525	0·0512	0·0474	0·0469	0·0445	0·0459	0·0456	0·0455	0·0444	0·0424
5°	0·1177	0·0790	0·0715	0·0565	0·0534	0·0512	0·0451	0·0457	0·0437	0·0448	0·0465	0·0474	0·0419	0·0408
7·5°	0·1167	0·0780	0·0701	0·0545	0·0541	0·0517	0·0437	0·0444	0·0426	0·0432	0·0455	0·0472	0·0392	0·0383
10°	0·1143	0·0733	0·0687	0·0520	0·0550	0·0513	0·0415	0·0425	0·0408	0·0413	0·0451	0·0469	0·0363	0·0354
12·5°	0·1119	0·0765	0·0675	0·0485	0·0557	0·0509	0·0393	0·0402	0·0391	0·0395	0·0445	0·0463	0·0332	0·0324
15°	0·1095	0·0754	0·0662	0·0459	0·0561	0·0510	0·0384	0·0384	0·0375	0·0377	0·0442	0·0461	0·0304	0·0300
17·5°	0·1061	0·0738	0·0647	0·0433	0·0567	0·0509	0·0353	0·0370	0·0363	0·0361	0·0438	0·0461	0·0281	0·0281
Ø	118·4°	113·0°	113·0°	124·8°	105·5°	105·5°	119·5°	119·5°	118·4°	118·4°	106·6°	106·6°	125·9°	124·8°
α = 2·5°	0·1232	0·0815	0·0750	0·0624	0·0529	0·0512	0·0492	0·0484	0·0476	0·0496	0·0467	0·0455	0·0463	0·0463
5°	0·1290	0·0837	0·0780	0·0667	0·0543	0·0523	0·0524	0·0518	0·0504	0·0523	0·0481	0·0475	0·0504	0·0492
7·5°	0·1352	0·0861	0·0806	0·0722	0·0542	0·0534	0·0555	0·0544	0·0529	0·0549	0·0505	0·0481	0·0539	0·0525
10°	0·1401	0·0884	0·0834	0·0762	0·0550	0·0567	0·0584	0·0574	0·0562	0·0578	0·0515	0·0486	0·0574	0·0561
12·5°	0·1433	0·0915	0·0868	0·0809	0·0557	0·0558	0·0621	0·0603	0·0590	0·0609	0·0526	0·0493	0·0614	0·0603
15°	0·1454	0·0935	0·0901	0·0859	0·0562	0·0570	0·0657	0·0635	0·0620	0·0645	0·0539	0·0501	0·0657	0·0647
17·5°	0·1468	0·0964	0·0924	0·0914	0·0575	0·0579	0·0694	0·0670	0·0651	0·0678	0·0552	0·0511	0·0705	0·0692
Ø	138·8°	144·1°	144·1°	132·3°	151·6°	151·6°	137·7°	137·7°	138·8°	138·8°	150·5°	150·5°	131·3°	132·3°
α = 2·5°	0·1276	0·0846	0·0789	0·0646	0·0559	0·0549	0·0516	0·0512	0·0499	0·0513	0·0494	0·0499	0·0482	0·0462
5°	0·1385	0·0905	0·0841	0·0701	0·0623	0·0612	0·0564	0·0559	0·0546	0·0561	0·0543	0·0559	0·0523	0·0500
7·5°	0·1489	0·1013	0·0923	0·0745	0·0698	0·0684	0·0643	0·0604	0·0600	0·0616	0·0606	0·0629	0·0567	0·0544
10°	0·1577	0·1101	0·1000	0·0796	0·0777	0·0751	0·0669	0·0660	0·0659	0·0664	0·0677	0·0702	0·0609	0·0594
12·5°	0·1657	0·1203	0·1083	0·0855	0·0845	0·0831	0·0726	0·0723	0·0715	0·0729	0·0751	0·0729	0·0654	0·0646
15°	0·1732	0·1304	0·1174	0·0915	0·0955	0·0915	0·0787	0·0785	0·0777	0·0799	0·0825	0·0856	0·0704	0·0699
17·5°	0·1804	0·1400	0·1273	0·0982	0·1055	0·1007	0·0854	0·0854	0·0847	0·0876	0·0906	0·0949	0·0757	0·0759
Ø	169·8°	164·5°	164·5°	174·3°	157·0°	157·0°	170·9°	170·9°	169·8°	169·8°	158·0°	158·0°	177·3°	174·3°
α = 2·5°	0·1294	0·0874	0·0811	0·0665	0·0568	0·0558	0·0540	0·0534	0·0523	0·0529	0·0519	0·0492	0·0486	0·0494
5°	0·1439	0·0956	0·0898	0·0752	0·0634	0·0624	0·0608	0·0598	0·0650	0·0598	0·0576	0·0551	0·0552	0·0560
7·5°	0·1578	0·1057	0·0985	0·0846	0·0711	0·0702	0·0692	0·0680	0·0732	0·0680	0·0647	0·0618	0·0630	0·0638
10°	0·1694	0·1169	0·1090	0·0946	0·0796	0·0783	0·0773	0·0769	0·0832	0·0756	0·0727	0·0693	0·0718	0·0729
12·5°	0·1813	0·1298	0·1208	0·1064	0·0886	0·0874	0·0889	0·0869	0·0932	0·0854	0·0815	0·0775	0·0814	0·0828
15°	0·1924	0·1422	0·1324	0·1181	0·0980	0·0966	0·0990	0·0971	0·1040	0·0956	0·0907	0·0863	0·0912	0·0930
17·5°	0·2015	0·1550	0·1471	0·1308	0·1080	0·1074	0·1113	0·1086	0·1163	0·1068	0·1008	0·0964	0·1031	0·1048

Table 16

(p/p_0) FOR MODELS 32 AND 33 AT ZERO ANGLE OF ATTACK ALONE

SPHERICALLY-BLUNTED TANGENT OGIVE



f	2
2r/D	0·279
d/D	0·300
$\theta_1°$	
$\theta_2°$	
R/D	5·214

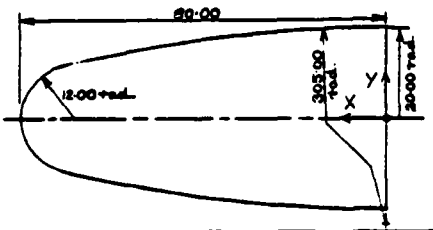
$C_{D_{P(\alpha=0°)}} = 0.1625$

Model No.	33	32	33	32	33	32	33	32	33	32	33	32	33	32
X	79·54	79·15	77·26	66·79	63·75	58·95	57·16	55·43	53·53	49·66	40·60	32·14	20·28	10·18
Y	2·21	2·96	4·95	8·96	9·94	11·45	11·93	12·44	12·92	13·93	15·95	17·47	18·95	19·73
$\alpha = 0°$	0·2142	0·2131	0·1097	0·0614	0·0608	0·0522	0·0532	0·0548	0·0519	0·0472	0·0418	0·0364	0·0303	0·0259

Table 17

(p/p_0) FOR MODELS 34 AND 35 AT ZERO ANGLE OF ATTACK ALONE

SPHERICALLY-BLUNTED TANGENT OGIVE



f	2
2r/D	0·384
d/D	0·600
$\theta_1°$	
$\theta_2°$	
R/D	7·625

$C_{D_{P(\alpha=0°)}} = 0.2920$

Model No.	35	34	35	34	35	34	35	34	35	34	35	34	35	34
X	79·75	79·60	78·90	76·03	74·70	71·48	69·46	67·24	65·06	60·25	43·12	38·94	24·69	2·33
Y	2·28	2·96	5·08	8·96	9·97	11·43	11·94	12·40	12·93	13·95	15·97	17·44	18·95	3·43
$\alpha = 0°$	0·2144	0·2155	0·2144	0·1558	0·1084	0·0534		0·0454	0·0448	0·0423	0·0357	0·0327	0·0274	0·0246

LIST OF SYMBOLS

$C_{D_{p(\alpha=0^o)}}$	forebody pressure drag coefficient at zero angle of attack. Pressure drag/$(q\pi D^2/4)$
D	maximum body diameter
d	diameter of nose blunting (see Fig 2)
f	forebody fineness ratio L/D
L	overall forebody length
p	surface pressure
p_0	freestream stagnation pressure
q	dynamic pressure
R	radius of tangent ogive profile (see Fig 2)
r	body radius at junction between spherical nose blunting and forebody profile (see Fig 2)
X	axial distance along body centre line (positive upstream)
Y	radial distance of body surface from X axis
α	body angle of attack to freestream
θ_1 and θ_2	angles between conical sections and X axis (see Fig 2)
ϕ	effective pressure hole roll angle. Set in range of 0 to 90 degrees as model and pressure symmetry either side of pitch plane assumed. $\phi = 0$ is most leeward generator on model surface as α increases positively.

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No.	Author	Title, etc
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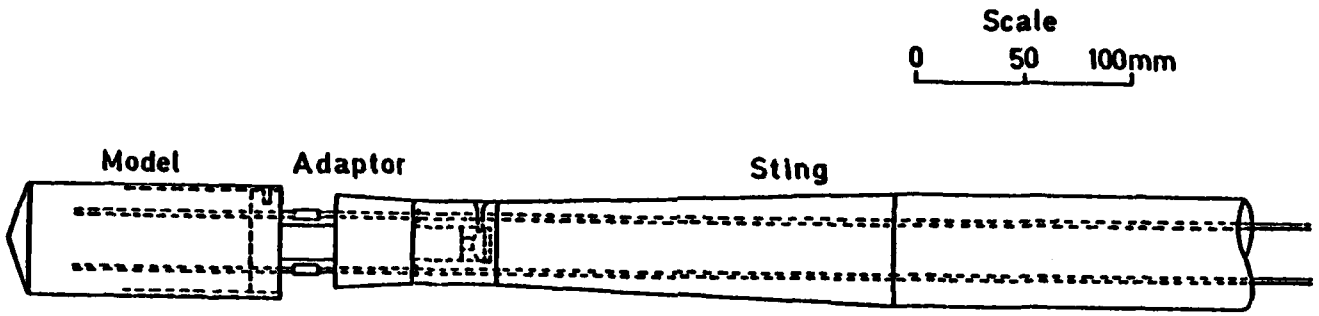
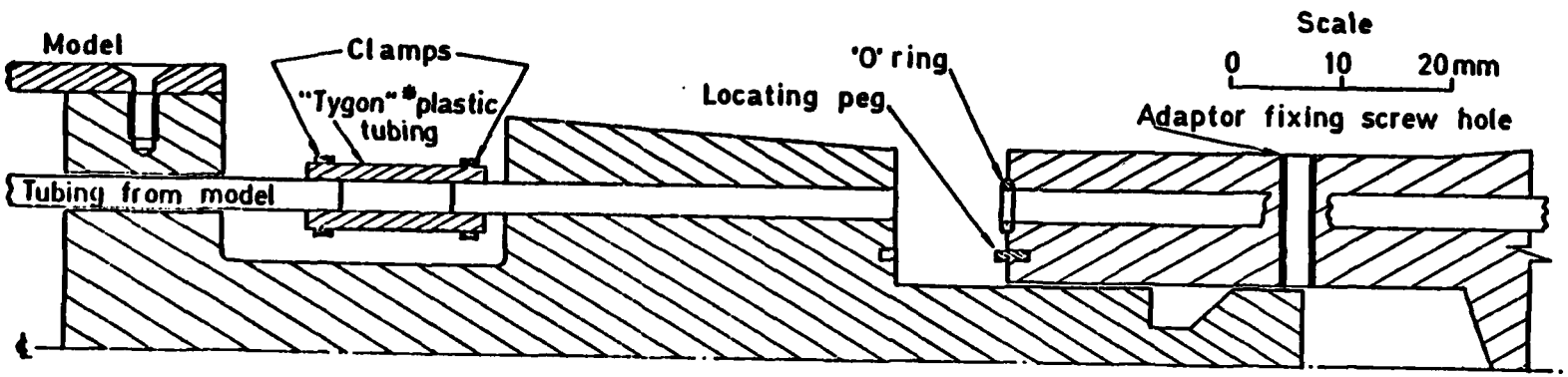
2	-	Forebodies of fineness ratio 1.0, 1.5 and 2.0, having low values of wave drag coefficient at transonic speeds. Engineering Sciences Data Unit Item 79004 (1979)
3	-	Axial pressure coefficient distributions for forebodies of fineness ratio 1.0, 1.5 and 2.0 at zero incidence in transonic flow. Engineering Sciences Data Unit Item 80008 (1980)
4	-	Pressure drag of blunt forebodies at zero incidence for Mach numbers up to 4. Engineering Sciences Data Unit Item 80021 (1980)
5	-	The pressure distribution at zero incidence over selected families of blunt axisymmetric forebodies. Engineering Sciences Data Unit Item 82018 (1982)
6	-	Pressure drag of spherically-blunted conical forebodies at zero incidence for Mach numbers of 3 and above. Engineering Sciences Data Unit Item 82028 (1982)
7	L.C. Ward	Measurements of pressure distributions and pressure drags at zero incidence on both blunt and sharp axisymmetric forebodies at a Mach number of 3. ARC Reports and Memoranda No.3849 (1976)



General arrangement



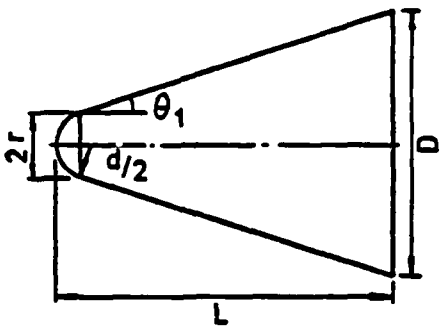
Adaptor and 'O'ring sealing details

* Proprietary trade name - formulation R3603

Fig 1 General arrangement of model mounting on the wind-tunnel sting, and details of '0' ring adaptor

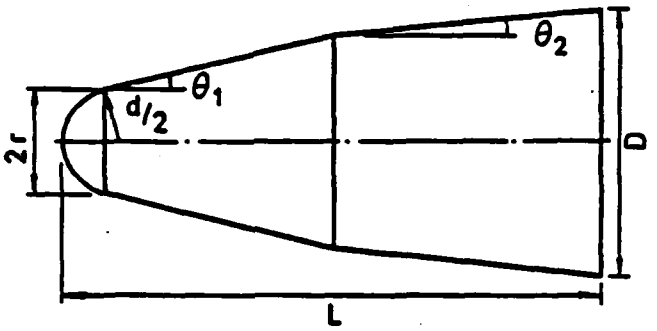
Fig 2

Spherically blunted single cone



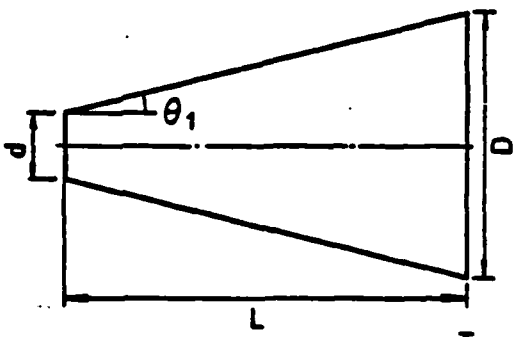
f = L/D

Spherically blunted double cone



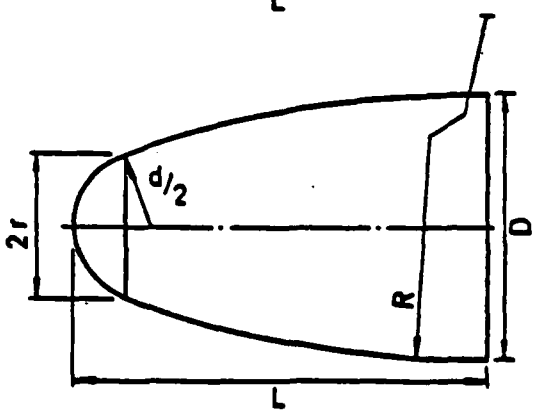
f = L/D

Truncated cone



f = L/D

Spherically blunted tangent ogive



f = L/D

Fig 2 Geometrical nomenclature used for the forebodies. Cylindrical afterbodies are not shown

REPORT DOCUMENTATION PAGE

Overall security classification of this page

UNLIMITED

As far as possible this page should contain only unclassified information. If it is necessary to enter classified information, the box above must be marked to indicate the classification, e.g. Restricted, Confidential or Secret.

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7. Title **Experimental pressure distributions on axisymmetric forebodies at Mach 3 and angles of attack up to 17.5 degrees**

7a. (For Translations) Title in Foreign Language

7b. (For Conference Papers) Title, Place and Date of Conference

8. Author 1. Surname, Initials	9a. Author 2	9b. Authors 3, 4	10. Date	Pages	Refs.
Ward, L.C.			November 1983	25	7

11. Contract Number	12. Period	13. Project	14. Other Reference Nos.
N/A	N/A		

15. Distribution statement

(a) Controlled by – Head of Aerodynamics Department, RAE

(b) Special limitations (if any) –

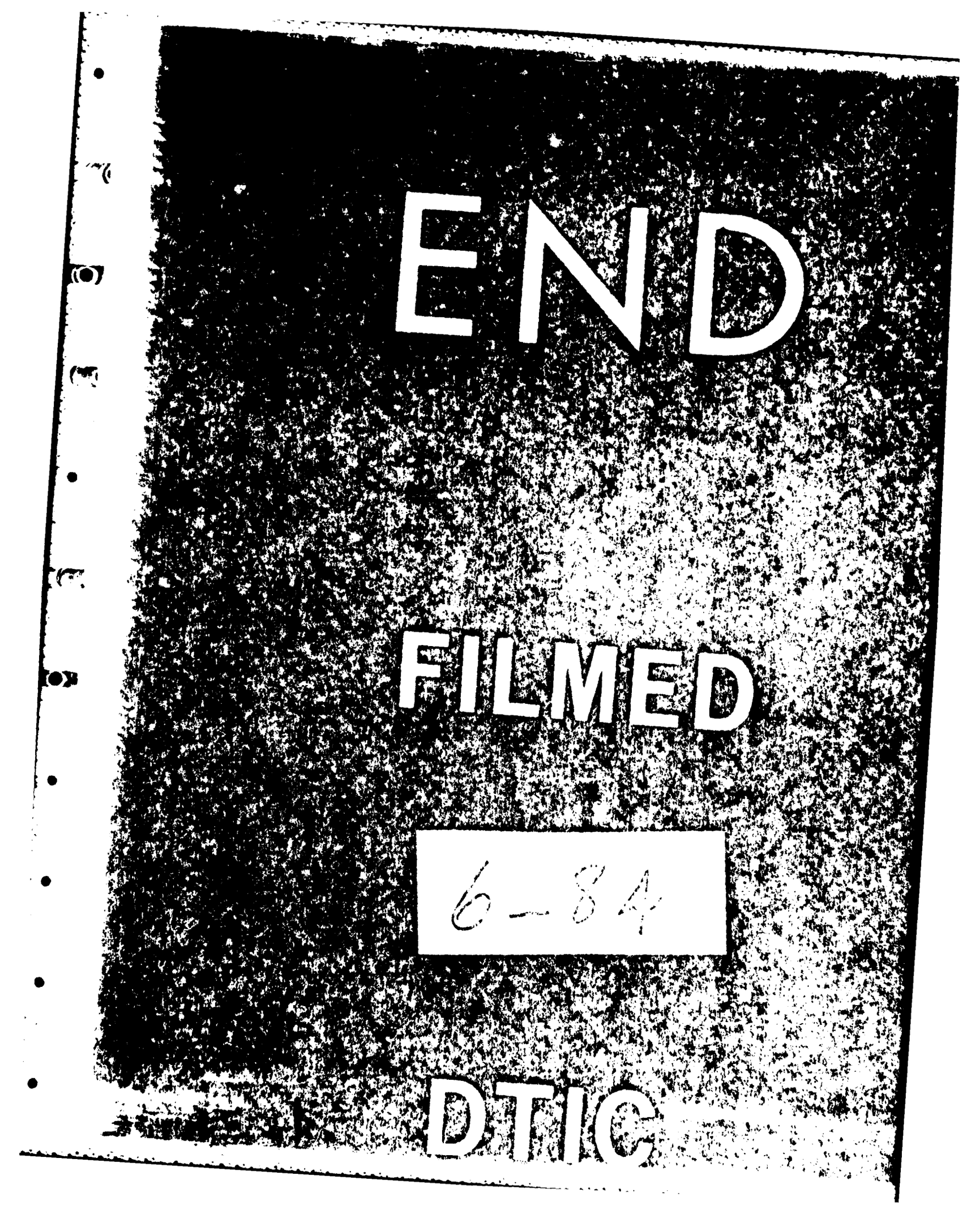
16. Descriptors (Keywords) (Descriptors marked * are selected from TEST)

Blunt bodies*. Bodies of revolution*. Pressure measurement*. Supersonic flow*.

17. Abstract

Tabulations of experimental surface pressure distributions on both blunt and sharp axisymmetric forebodies are presented for a freestream Mach number of 3.0 and body angles of attack up to 17.5 degrees. The experimental details are described, but no analysis of the resultant data has been undertaken.

5910/1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